Sveriges lantbruksuniversitet
Swedish University of Agricultural Sciences

Department of Economics

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- a study of animal-based food consumers' perceptions in Mexico using the ZMET tool

Vad är djurvälfärd?
– en studie av uppfattningar hos konsumenter av animaliska livsmedel i Mexiko med forskningsverktyget ZMET

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Acknowledgements

"Nothing can be created out of nothing," said Lucretius once. Indeed, this thesis was created as a result of investment: an investment of time, intellect and passion. During this creation process, things were not easy at all, but, when times were hard, I luckily had people around me, who supported me and cheered me up. Thus, I want to thank each one of you who were there for me during this writing process.

I want to thank my parents: my mom Ale, she is a gold-hearted fighter, and I have learnt from her to be strong, by understanding that every effort and every struggle it is worthy at the end; if you go down, you can always stand up again and to be kind, humble always. My dad Juan, he is a strong man with a will of steel, from him I have learnt to be responsible for my actions and to put the best of me in everything I do. Today, here I am, I am as a person and as a student, the result of my parents' lessons, I love you both!

I want to thank my grandma because she has a pure heart; she is my perfect example of "it is never too late to do the things you love"; *te amo abuelita*. I also want to thank every member of my family: my aunts, my uncles, my cousins and of course, my little nieces, because, believe it or not, each one of you made a positive impact on me, and you all cheer me up. Thank you, family, I love you!

Last but not least, I want to thank all my friends Viridiana, Clarissa, Priscila and Marisol because, without you, I would not have anyone to release all this stress or anyone to give me encouraging words, I love you all!

Special thanks to you Josefina, my Swedish-Finnish dearest, thank you for all these years. All these years you were my confidant, my roomie, my friend, my support, my companion. You are my everlasting friend and I love you!

Thanks to everyone who participated in the interviews, for your time and for sharing your thoughts. Thanks to my supervisor Helena, who was very patient, always supported me and provided me with the right tools to finish this work.

Thank you all, this thesis is also yours!

Abstract

Authors stress that farm animal welfare (FAW) has become a mainstream contemporary societal demand worldwide, resulting in research conducted with FAW. The most popular type of research are surveys that analyse consumers' attitudes towards FAW, yet, these are limited geographically to the European Union, the United States, and Canada. Very few studies have been done in Latin America, regardless of evidence that suggests an expected increase in the social demand of FAW and its associated products. FAW related knowledge in terms of consumer preferences today, still scarce in Latin American countries, with only Mexico, Chile, and Brazil being the referent countries creating scientific publications that address FAW. Nevertheless, such scientific publications often focus on farmers and slaughter practices, excluding consumers' attitudes and perceptions. Thus, this study acknowledges that the agri-food chain is integrated by different actors, focusing on understanding what FAW is from the consumers' perception perspective.

This study aimed to investigate the Mexican respondents' perceptions in their role of consumers of animal-based food when forming a meaning for FAW. Thus, a novel approach was embraced by applying the Zaltman Metaphor Elicitation Technique (ZMET) and interpreting the results based on the Means-End Chain (MEC) theory and the Schwartz's personal values theory; this approach, together with the findings, are the study's key contribution. The findings in this research suggest that when attaching a meaning for FAW, the meaning respondents build is complex, being integrated by a set of hierarchical relationships. These relationships are integrated by elements like attributes leading to consequences, to achieve a specific set of values. The study displays them graphically through a Hierarchical Value Map (HVM) representing the first-ever Mexican respondents' mental model when forming a meaning for FAW.

By examining such elements, this study discovered that respondents consistently reflected FAW as a set of specific and distinctive characteristics in animal-based food; such characteristics are the attributes free from chemicals, more natural, higher quality, cruelty-free, better taste, ethical and artisan-made. Also, the respondents perceived FAW as a physiological or psychological result happening not to them as a person, but to the farmed animals, taking the form of a set of consequences that were consistently evoked by them and that reflect their thoughts of FAW being no pain/painless life, freedom of movement, free from stress, non-alteration of the animals' development, access indoor/outdoor, access to natural food and water, no overexploitation, dignified life, access to medical care, non-forced reproduction, access to socializing with their own species, access to rest and sleep, dignified slaughter and recognition of farmed animals as sentient beings the recurrent constructs. Finally, when thinking of FAW, the respondents ultimately reach three end-states: being compassionate, wellness, and achievement.

The results displayed here might serve as a source of useful knowledge or a guideline when the time comes, and the actors in the agri-food chain -producers, distributors, marketers, and policy-makers- in Mexico decide to listen to the consumer concerns by embracing FAW practices and designing FAW frameworks which goal is the insurability of farm animal welfare from the farmed animals' birth until the moment of their consumption.

Abbreviations

AFP   Animal-friendly products
EU   European Union
FAWC   Farm Animal Welfare Committee
FAW   Farm Animal Welfare Committee
HVM   Hierarchical Value Map
MEC   Means-end chain
R&D   Research and Development
ZMET   Zaltman Metaphor Elicitation Technique

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1 Introduction

The consumers' attitudes towards farm animal welfare (FAW) are changing worldwide (Vargas-Bello-Pérez, Miranda-de la Lama, Lemos Teixeira, Enríquez-Hidalgo, Tadich, and Lensink, 2017). Previous studies concluded that consumers are the stakeholders increasingly concerned with the welfare of farmed animals. Thus, they have been demanding and encouraging changes in the FAW conditions within the primary production systems (Verbeke, 2009; Vargas-Bello-Pérez et al., 2017).

This global consumers' FAW concern has surfaced as highly crucial in numerous studies across the European Union, the United States, and Canada (Mayfield, Bennett, Tranter, and Wooldridge, 2007; Vargas-Bello-Pérez et al., 2017). However, when looking into Latin America, FAW is still considered as an emerging topic. Hence, little is known about the consumers' concerns and perceptions towards it, regardless of the Latin America's region importance in terms of livestock production and animal-based food trade globally (Miranda-de la Lama, Estévez-Moreno, Sepúlveda, Estrada-Chavero, Rayas-Amor, Villaroel and María, 2017; Food and Agriculture Organization of the United Nations, 2018).

Mexico results relevant to examine since it is the second-most populated Latin American country and holds the second-largest economy with 112 million inhabitants (Instituto Nacional de Estadísitica, Geografía e Informática, 2019). Mexico plays a vital role in agro-related production: it has the second most significant number of livestock with 39 million heads of cattle; shares with Brazil the first position in milk production; it is the number ten of the top-twenty most significant beef exporters worldwide; and Mexico's annual per capita consumption of animal products consists of 30 kilograms of poultry meat, 17 kilograms of beef, 16 kilograms of pork, 1,5 kilograms of lamb and 97 kilograms of milk and dairy products (Vargas-Bello-Pérez et al., 2017; Miranda-de la Lama et al., 2017).

In Mexico, the consumption of animal-based food and the growing concern about the welfare of the animals used to produce such items have been rising over the years (Vargas-Bello-Pérez et al., 2017; Miranda-de la Lama et al., 2017).Thus, the consumers are now starting to change their consumption patterns by buying more natural, healthier, high-quality, animal-based food (Vargas-Bello-Pérez et al., 2017; Miranda-de la Lama et al., 2017). The Mexican consumers' demands for animal-friendly products is expected to grow significantly in the next years (Vargas-Bello-Pérez et al., 2017; Miranda-de la Lama et al., 2017).

To better satisfy such demands for FAW products, research that provides an accurate understanding of Mexican consumers' perceptions of FAW placed at the current Mexican reality is required (Mayfield et al., 2007; Miranda-de la Lama, 2017). Previous studies developed in other countries cannot reflect the Mexican reality. The geographical, historical, and economic contexts of their culture, impacts in the consumers' perceptions and preferences, originating cultural diversity (Tiu Wright, Nancarrow, and Kwok, 2001). This thesis is settled in the Mexican context and aims to investigate the respondents' perceptions in their role of consumers of animal-based food when forming a meaning for FAW.

1.1 Problem background

Farm animal welfare (FAW) science had its origin in 1960. Since that time, many academics have embraced FAW's definition as the sentient animal's ability to cope with its environment experience (Blokhuis, Miele, Bennett, and Bock, 2013).

FAW is determined according to the Five Freedoms proposed by the Farm Animal Welfare Committee (2009). These Five Freedoms are *1) Free from thirst, hunger, or malnutrition* by ensuring access to freshwater and a diet to maintain full health and vigour; *2) Freedom from discomfort* by providing shelter and resting area; *3) Freedom from pain, injury, and disease* always preventing, giving diagnosis and treatment accurately; *4) Freedom to express normal behaviour* with sufficient space, proper facilities, and company of the creature's own kind*; 5) Freedom from fear and distress* by evading mental suffering. These five aspects serve as a commonly-used basis when referring to FAW in academic works (You, Li, Zhang, Yan and Zhao, 2014).

FAW is a mainstream contemporary societal demand (Blokhuis et al., 2013) and an unsought externality of the animal-based food's production and consumption (Bennett, 1995, cited by Mayfield et al., 2007). Therefore, the form that this externality takes depends on the perceptions of consumers. In terms of consumers' perceptions, FAW is the consequence of the extraordinary degree of industrialization in primary production; food safety concerns; ethical considerations; concerns about food quality and humans' bonds with pet creatures; and the rising knowledge and information about animals' physiological and psychological requirements (D'Silva, 2009; European Commission, 2002; Evans and Miele, 2008; Hansson and Lagerkvist, 2015). Given such increased concern of FAW among consumers, several types of research use FAW as the study object.

Significantly, many scholars have carried out surveys to analyse consumer attitudes towards FAW (You et al., 2014). Examples of these surveys are the European Commission's Eurobarometer from 2005 and 2007, the Animal Welfare Project by the International Fund for Animal Welfare, and the Welfare Quality Project by the European Union. The results from these studies show standard features in consumers' opinions regarding FAW across the European Union and situated FAW as an essential issue for European consumers (You et al., 2014).

The vast amount of this kind of studies is limited geographically to the European Union, the United States, and Canada. Very few studies have been done in Latin America, regardless of the expected increase in the consumer demand for FAW and its associated products (Vargas-Bello-Pérez et al., 2017). The Latin American scientific publications often exclude the consumers' attitudes and perceptions, focusing on farmers and slaughter practices (Vargas-Bello-Pérez et al., 2017). However, FAW is not something that can be exclusively addressed by veterinary animal science. Instead, FAW's better understanding requires integrating animal welfare science within the context of the food chain actors, i.e., farmers, retailers, and consumers. Such actors are part of the economics discipline (Blokhuis et al., 2013).

Then, considering that FAW should include human interests to ensure that the animal's interest remains stressed (Farm Animal Welfare Committee, 2011), the economics discipline plays an important role when studying both: human and animal welfare. Economics is concerned with allocating scarce resources to alternative uses, pursuing human welfare, including the consideration of the fundamental drivers of human behaviour. Therefore, it involves the profitability of the farming business and national and international economic issues related to farming practices (Farm Animal Welfare Committee, 2011).

In terms of economics, animal welfare matters since it is part of the subset of human preferences, i.e., the satisfaction of human preferences (the wants) can elevate the human utility (the pleasure), which will determine the human welfare. Ergo, this work has one foundation in the economics discipline since the economics can help better understand the relationship

between animal welfare and human welfare, to achieve the society's desired level of FAW (Farm Animal Welfare Committee, 2011).

Likewise, to study and explain how consumers make their choices towards products, the economics need to turn into business studies, particularly into the marketing area, as Kotler (2016) suggests, which settles the other foundation of this work. From the marketing perspective, to maintain consumers' confidence, the other agri-food chain actors should meet the consumers' requirements in livestock production practices. A way of doing it is to recognize that FAW pays-off financially, and that by embracing it, the consumers' demands can be satisfied (McIvor, 2018).

1.2 Problem statement

Different studies are proof of a Western society that is highly concerned about FAW. It is precisely this public concern that has driven changes in the way that animal-based food is produced and marketed worldwide. Still, a significant challenge is to achieve a consensus about what FAW means, due to the existence of diverse and various views from different stakeholders (Faucitano, Martelli, Nannoni and Widowski, 2017).

Certainly, FAW is a dynamic and multidimensional concept because it involves many aspects of the animal's life and society's evolving attitudes towards animal welfare. For example, between 1980 and 1990, consumers liked to see the meat they will eat in pre-packaged cellophane with the words "beef" and "pork" instead of cow and pig -as done before-. The lack of direct reference to the animal made the meat more palatable (Blokhuis et al., 2013). Today, one still can find this statement's applicability when making our own purchasing decisions.

The consumers are ultimately the social agents that drive the structure of new forms and intentions of FAW governance and practice (Mayfield et al., 2007; Blokhuis et al., 2013). However, the number of studies exploring consumers' perceptions and attitudes about farm animal welfare in Mexico is minimal, despite the growing consumers' interest in the topic (Miranda-de la Lama et al., 2017). This limited amount materializes in only one study known at the moment conducted by Miranda-de la Lama et al. (2017), which investigates the Mexican consumers' willingness to pay for animal-friendly products and FAW as a product attribute.

Such study uses a survey that sampled Mexican consumers of animal-based food in different supermarkets, using a questionnaire with Likert-scale answers to measure the following: the importance of farmed animal welfare; the importance of FAW education for children; the importance of the prevention of abuse in the farmed animals; what level of knowledge consumer had about FAW; identify farmed animals as sentient; whether conditions on FAW have improved in Mexico over the years; consumer willingness to pay for FAW products and identify the main reasons to buy FAW-friendly products in animal-based food (Miranda-de la Lama et al., 2017). The study significantly contributed to the literature highlighting the existent FAW concern and the willingness to pay for animal-friendly products among Mexican consumers.

However, the problem is that the exact consumers' meaning of FAW is not revealed. Though, including consumers' perceptions when addressing FAW in animal-based food represents a potential market effect of higher animal welfare standards (Heise and Theuvsen, 2017). Therefore, this study has chosen to focus on identifying what values, consequences, and attributes shape the perceptions of FAW on animal-based food consumers in Mexico, within the MEC framework. The identification of such elements stems from the application of the ZMET tool, which also yields a Hierarchical Value Map (HVM) that represents the consumers'

mental model graphically. The ZMET is a research tool that shows mental models that drive consumer thinking and behaviour by using images as metaphors. Since the ZMET addresses the marketing's needs of consumers better understanding, it is a widely used method. Many business and marketing researchers embrace it because it gathers results with a unique insight (Zaltman and Coulter,1995). Hence, such a tool seems to fit perfectly into this study's aim of identifying animal-based food Mexican consumers' perceptions when forming a meaning for FAW.

Moreover, the academics agree on the need for developing different approaches and frameworks that can improve and reflect better the consumers' demands and requirements to primary producers (Faucitano et al., 2017). It is pivotal to synchronize better the FAW views held by the consumers and farmers to accomplish a better-working value chain (Swedish Centre for Animal Welfare, 2016). With an integration of the knowledge on the different perceptions of consumers towards farm animal welfare, all the other food chain actors can adapt better their strategies for ensuring farm animal welfare (Vargas-Bello et al., 2017).

In the past, FAW in Mexico encountered many issues and remained unattended. The population used to have a misperception about animals, believing that animals can not suffer, feel pain or stress. These are negative attitudes towards animals, which are reflected in cruelty behaviours and negligence practices (Del Campo, 2006; Hinojosa, Mendoza, Jímenez, Izquierdo, Castañeda and Gutiérrez, 2005; Córdova-Izquierdo, Ruiz-Lang, Saltijeral-Oaxaca, Xolalpa-Campos, Córtes-Suárez, Méndez-Mendoza, Huerta-Crispin, Córdova-Jiménez and Guerra-Liera, 2009). Nowadays, consumer preferences and attitudes towards animals in Mexico are changing. Mexican consumers are becoming more concerned about the animal welfare topic which is reflected as growth on the welfare-friendly products' market (Miranda-de la Lama, Estévez-Moreno, Villarroel, Rayas-Amor, Maria and Sepúlveda, 2017).

Thus, the need for studies that can evidence the preferences, perceptions, concerns, and attitudes of Mexican consumers. These studies might play a vital role as a source of information for the agro-food industry actors. They can bring a better understanding of Mexican consumer behaviour towards FAW (Santurtún, Tapia, Gónzalez-Rebeles and Maldonado, 2012).

1.3 Aim and research questions

This thesis aims to identify animal-based food Mexican consumers' perceptions when forming a meaning for FAW. To achieve the aim and to keep the focus during the development of this study, two research questions are formulated:

1. *What meaning do animal-based food consumers give to the term farm animal welfare (FAW)?*
2. *What attributes, consequences and values are used by animal-based food consumers when forming a meaning for farm animal welfare (FAW)?*

1.4 Contribution and delimitations

This thesis contributes to the marketing field, by enriching the insufficient current knowledge in consumers' perceptions of FAW in Latin America, specifically in Mexico, given its significance of animal-based food consumption and production. Overall, this thesis fills-out a gap in the existing literature on FAW worldwide by performing a study within the context of food chain actors, redirecting the research on FAW to focus on the consumers' perceptions. This thesis investigates consumers' perceptions in Mexico with an approach rarely seen in

existing studies: the combination of ZMET tool and the interpretation of the results within the MEC and Schwartz's personal values framework.

Consumers are the key drivers of FAW since they influence the marketplace. Consumers can change their buying behaviour or refuse to buy products from systems with aspects they do not like (Alonso, González-Montaña and Lomillos, 2020). Therefore, the animal-based food industry must allow consumers to better satisfy their preferences by understanding their FAW perceptions accurately (Mayfield et al., 2007; Blokhuis et al., 2013). Which means the potential improvement of producer returns since consumers are willing to pay more for animal-friendly products and the ability of the market to exert a demand-pull that improves the current welfare of farmed animals. Which also means the creation of an appropriately designed framework, derived from social science-based studies (Mayfield et al., 2007; Blokhuis et al., 2013).

Hence, this study's core contribution is the first and only Mexican consumers' mental map of FAW, represented graphically through the Hierarchical Value Map, which might be a beneficial source of information, for each participant in the animal-based food chain. This mental map is a model with an insight into the actual meaning representation of FAW, that drives consumer thoughts and behaviour (Lagerkvist et al., 2015).

In farm animal welfare (FAW) studies is argued that the animal's welfare can be influenced directly and indirectly. A farmed animal is directly affected by its production environment, including all the production's chain members like farmers, transporters, and slaughterers, but excludes meat or milk processors, retailers and consumers since they have no direct effect on how the animal feels. Thus, they indirectly impact animal welfare since they can influence the production's chain members' behaviours. These indirect actors are conceived as a society (Ingenbleek, Harvey, Ilieski, Immink, Roest, and Schmid, 2013).

Consequently, Ingenbleek et al. (2013) proposed a model based on the indirect actors, divided into three institutional domains: state, market, and civil society; each domain can influence FAW differently. For example, the state in the form of government can influence FAW by developing and controlling regulations; the market in the form of consumers has the power to improve conditions of FAW by demanding animal-friendly products and setting FAW products as essential; and the civil society in the way of citizens, can spread awareness and put the pressure to improve FAW by using social networks.

From all these three actors, is the market in its form of consumers that emerges as the most crucial channel for the future of FAW, because the more consumers are involved with FAW, the more delivery of consumers' perceptions of FAW by the production's chain actors (Ingenbleek et al., 2013; Harvey and Hubbard, 2013). Given the consumer's weight, this thesis uses Ingenbleek's et al. (2013) model to delimitate its research focus to a single actor, rather than all of them; the research focus is the consumer.

2 Conceptual framework

A conceptual framework has been determined to understand the mental model created from the consumers' perceptions. This framework merely serves to delimitate the research scope and express the coherent set of concepts, beliefs, values, propositions, assumptions, hypotheses, and principles that guide the results' interpretation (Sheafor, Horejsi, and Horejsi, 1994).

2.1 Farm Animal Welfare (FAW) from the Economics view

The Farm Animal Welfare Committee (2011), also known as FAWC, establishes that animals are kept for various purposes, and humans should cover their needs in return, as a permanent or temporary responsibility. Moreover, due to previous studies, it is well-known that farmed animals are sentient beings, which is even recognized in the EU Treaty of Amsterdam, dated 1999.

Since studies started to research the FAW topic, there has been a struggle to define what exactly is (Farm Animal Welfare Committee, 2011; Verbeke, 2009). However, most of the literature stick to the Farm Animal Welfare Committee's definition: *"farm animal welfare encompasses both physical and mental health, and for farm animals is largely determined by the skills of the stock workers, the system of husbandry and the suitability of the genotype for the environment"* (2011, p.2).

The FAWC (2011) has also set the Five Freedoms as a guideline to ensure, promote good welfare and avoid unnecessary suffering, such are 1) *Freedom from hunger and thirst*, by ready access to fresh water and a diet to maintain full health and vigour; 2) *Freedom from discomfort*, by providing an appropriate environment, including shelter and a comfortable resting area; 3) *Freedom from pain, injury, and disease*, by prevention or rapid diagnosis and treatment; 4) *Freedom to express normal behaviour*, by providing sufficient space, proper facilities and an appropriate company of the animal's own kind, and 5) *Freedom from fear and distress*, by ensuring conditions and treatment which avoid mental suffering.

Nevertheless, as Lusk and Bailey Norwood (2011) argued, the professionals leading the research and debate on FAW are mostly animal rights activists, philosophers, lawyers, biologists, and animal scientists. In this scene, the economists have just started to contribute with a more economic analysis that can improve animal welfare. Thus, the literature concerning FAW from the economics view is somehow scarce and is a sort of new area of inquiry (Lusk and Bailey Norwood, 2011). It is the works by Lusk (2011), Lusk and Baily Norwood (2011), and McInerney (1993), the ones that have set the grounds to approach FAW from an economic perspective.

When looking at FAW from the traditional economics view, the previously mentioned authors converge in explaining FAW as an externality. According to Lusk (2011), an externality happens in a competitive market and means that a cost or benefit passes on a third party not involved in the original transaction.

Lusk (2011) explains the economics of FAW with an example, which ask us to think about the meat production process, where 1) farms purchase animals and other inputs such as corn and labour, to produce meat; then 2) the farmers and meat packers have to negotiate with meat consumers that are either the carnivores (i.e. those only caring about enjoying eating meat) or the compassionates (i.e. those enjoying eating meat but simultaneously concerned about the

animal suffering); meaning that 3) these negotiations and interactions between actors (i.e. farmers, meat packers and consumers) have as consequence a market price for meat products; which causes that 4) farms are seen as producers of another output such as animal welfare, which is not included generally into the price of meat; therefore 5) if the levels of animal welfare are low, the production of meat will create a negative externality (i.e. animal suffering); moreover 6) this negative externality, becomes a cost imposed on a third party (i.e. the consumers that are vegetarians, vegans and the compassionate ones) because they are the type of consumer saddened by the current state of animal production; as result 7) the price of meat do not take into consideration the disutility experienced by vegetarians, vegans or compassionate consumer from animal suffering, and finally it causes that 8) more meat will be produced than is desirable in a utilitarian sense as judged by the aggregate welfare of all consumers (i.e. meat production generates a negative externality and society is over consuming meat).

The previous paragraphs express the traditional utilitarian economic view of FAW, which, according to Lagerkvist and Hess (2010), is anthropocentric welfarism. In anthropocentric welfarism, only human welfare or utility counts, and animal welfare is a subset of human welfare. It is relevant to understand in the eyes of philosophers like Singer (1979), that this omission of the animal's welfare is known as being in favour of speciesism. Thus, the neat economic view of FAW might slightly differ from the more philosophical view of FAW. However, as Lusk and Bailey Norwood (2011) mentioned, the researchers must extend the traditional economic view to one that includes and explores animal welfare, setting up the opportunity of developing this kind of research through this study.

Moreover, this study requires these economic premises to build an understanding of how is that FAW and the economic discipline are not averse to each other, as the anthropocentric welfarism and traditional economists suggest. Instead, both are complementary, given the FAW multidisciplinary nature.

2.2 Farm Animal Welfare (FAW) in Marketing

Lusk and Bailey Norwood (2011) argue that a considerable amount of FAW research within the marketing area focuses on determining consumers' preferences for improved farm animal welfare. Thus, this kind of research is proven to provide useful and essential insights relevant to producers, retailers, and marketers, since the consumers' purchasing decisions are evidenced and can be better satisfied (Lagerkvist and Hess, 2010).

The existing literature that addresses either FAW or AFP (animal-friendly product) is built on studies that investigate one of the following: the consumers' concerns for FAW, willingness to pay for animal welfare, the role of consumer trust in AFP labels, and trade-offs that consumers are willing to make between FAW and other product benefits. Nevertheless, it remains unapproached to the theme of how marketing can encourage consumers to buy AFP (Van Riemsdijk, Ingenbleek, Van Trijp, and Van der Veen, 2017).

While reviewing the vast literature, it becomes evident that the consumer is who makes the ultimate decision to whether accept or not the FAW or AFP products, meaning that they can be powerful drivers or barriers in the development of a market for such products. Hence, the importance of developing consumers' focused research when willing to address FAW and its improvement (Van Riemsdijk et al., 2017).

The relevance of approaching FAW from the marketing perspective resides in the fact that consumer preferences for either FAW or AFP are very different. Such differences can stem from a wide range of factors. For example, on the one hand, some consumers purchase AFP because of their ethical responsibility. On the other hand, consumers purchase AFP because they believe that these are healthier than the average product. The differences in consumers' preferences derive from varying perceptions, attitudes, norms, values, or even cultural characteristics. Thus, the FAW research must provide useful insights that help to identify and understand all consumers' preferences differences to develop effective marketing strategies (Van Riemsdijk, Ingenbleek, Van Trijp, and Van der Veen, 2017).

The consumers are the actors that decide to purchase certain products instead of others. Therefore, consumers' concerns about FAW can definitely influence the ethical positioning of animal-based food companies. If a company has poor practices like indoor confinement, stocking densities, lousy handling, long-distance transport, livestock truck accidents, and cruel slaughter, the consumers perceive it as unfavourable, and this decreases the company's acceptance (Miranda-de la Lama et al., 2017).

Marketing research that focuses on FAW worldwide is gradually improving, driven by consumers' concerns and demands, corporate commitments, and governmental regulations (McIvor, 2018). Nevertheless, in Mexico's case, more extensive marketing research that investigates FAW is yet to come. Despite the necessity to inform the consumer and convince the animal-based food industry about the ethical value of an ensuring FAW product, which represents an element of growing economic importance and a business opportunity (Miranda-de la Lama et al., 2017). Overall, thanks to the marketing perspective, this study understands FAW as a more significant benefit for every actor in the animal-based food chain. This study focuses on making sense of how the consumers who participated in the interviews perceive FAW, how they behave, and what they demand from the rest of the agri-food chain actors.

Moreover, it is essential to clarify that consumers' perceptions stem from the consumers' behaviour theory, a group of premises that attempt to understand how consumers think and feel about different brands and products. Consumer behaviour theory involves studying consumers' attitudes, consumers' perceptions, and consumers' purchasing decisions (Peelen, 2005; Saeed, 2019). For this study, the focus is on the consumers' perceptions aspect of such a theory.

In terms of FAW, a vast amount of studies (Nocella et al., 2010; Schulze et al., 2008; Vanhonacker and Verbeke, 2014 cited by Heise and Theuvsen, 2017) conclude that what determines consumers' perceptions depends merely on the consumers' beliefs and personal characteristics -like socio-demographics and lifestyle-. Other studies (Deimel et al., 2011; Franz et al., 2012; Kayser, 2012; Heise and Theuvsen, 2017) conclude that consumers' perception shapes according to the level of information gathered from the mass media coverage in agro-livestock sector topics; this study understands and embraces both conclusions.

The consumers' perceptions are pivotal determinants of shopping behaviour and product choice (Heise and Theuvsen, 2017; Zeithaml, 1988). Thus, including them when approaching FAW in animal-based food represents a potential market effect of higher animal welfare standards, helping to develop a more differentiated market segment for FAW-friendly animal-based food that enables a price requirement premium (Heise and Theuvsen, 2017). Therefore, when referring to consumers' perceptions during this study, one is appealing to that meaning built by consumers, recognising the various factors that can influence it and the diversity of perceptions among individuals.

2.3 Means-End Chain theory (MEC)

Gutman (1982) argued that values are a powerful force in governing individuals' behaviour in all aspects of their lives. Marketing planning and strategy use values to connect the behaviour of consumers and their values; this attempt is known as a means-end chain. It is called Means-end, since the means are the products in which individuals engage, and the ends are the valued state of being in a person, for example, happiness, realization, or safety. Hence, the Means-end chain is a model that explains how a product choice enhances the accomplishment of desired end states (Gutman, 1982).

In MEC, consumption is executed merely to satisfy values. Therefore, the consumer chooses products for the desired values that would be accomplished with the help of the product's attributes (Hansson and Lagerkvist, 2015). MEC recognises the existence of hierarchical relationships. Such hierarchical relationships depart from 1) the attributes, i.e., the use of a product or service (mean); to 2) the consequences, i.e., the physiological or psychological results happening sooner or later to the consumer, and finally reaching 3) the values, i.e., the state of being in the individual (end) (Gutman, 1982; Hansson and Lagerkvist, 2015).

The MEC's purpose is to offer a way to position products by associating means, i.e., product attributes, with advertising that seeks to tie the consumption of products to the achievement of desired ends, i.e., valued states (Gutman, 1982). Also, the MEC provides "the linkages connecting values important to consumers to specific attributes of products. Thus, consumers' perceptions and evaluations of products can be studied at different levels in the Means-end chain" (Gutman, 1982, p.70).

With the MEC, it is possible to sort into categories and connect attribute level distinctions used to create a product class with distinctions at the consequences and values level. Both levels represent the point where consumer choice happens per Gutman (1982). The connections between attributes, consequences, and values are the critical components of content in the associations that encode meaning. Therefore, with the MEC connections between its components, it is possible to understand the meaning attached to consumers' products, suggested Pieters, Baumgartner, and Allen (1995).

MEC helps in the collection of data that will give origin to the construction and design of the consumer's mental model, as long as is used with the interview technique called laddering, laddering derives aggregate value chains: prototypical sequences of attributes, consequences, and values for a sample of consumers, according to Pieters et al. (1995). Laddering allows the researcher to take a grounded theory approach by going through all raw data and identifying key themes later coded, grouped, and categorized, revealing the respondents' cognitive structure (Hansson and Kokko, 2018).

MEC serves as this study's framework by providing foundations for interpreting, analysing, and categorizing all the data gathered during and after the interview process. When executing the interview process, the application of the ZMET tool is required. This technique allows respondents to convey their thoughts in non-verbal terms by using images as a metaphor and allows the researcher to probe deep thought structures to learn more about how consumers feel and think (van Dessel, 2005). This study entirely uses ZMET to gather all the data needed to grasp into the consumers' perceptions and to source the information needed to interpret in the light of MEC theory, to build the mental model finally.

Furthermore, this technique offers the potential to explore related constructs that influence thought and behaviour by using images to tap into underlying subconscious thought processes and associations (van Dessel, 2005). The use of images allows the researcher to explore respondents' minds to access the content and start creating the mental model (Hansson and Kokko, 2018; Zaltman, 1997). These images represent metaphors of the causal links hidden in the human mind, allowing the individual to communicate to others their metaphors; metaphors are the key windows to see consumers' thoughts, feelings, and behaviour (Hansson and Kokko, 2018; Zaltman and Coulter, 1995).

A consumers' mental model organizes its elements hierarchically, with lower-level elements serving as means to accomplish higher-level elements as ends, indicating which values make products personally relevant. Such happens to be useful information when developing positioning concepts and advertising strategies. In the MEC, values are abstract goals or motivational concerns; and the attributes of products will lead to various consequences of product use, which in turn satisfy consumers' values (Pieters et al., 1995).

For example, suppose that a consumer wants to be ethical. The desire to be ethical is the goal/consequence, which attached value -state of being- is to eat a product that involves no animal suffering. The achievement feeling is reached; achievement is the end and the high-level element, i.e., the why. To reach the goal/consequence, it is necessary to buy FAW-friendly products. This action contains behaviours, like choosing products with less added chemicals, less industrialized, and more natural. Such are known as sub-goals since they are instrumental for reaching "buy FAW-friendly products." The sub-goals represent the lower-level element, i.e., the means / the how (Pieters et al.,1995). To illustrate this, as simple as possible, see *Figure 2.*
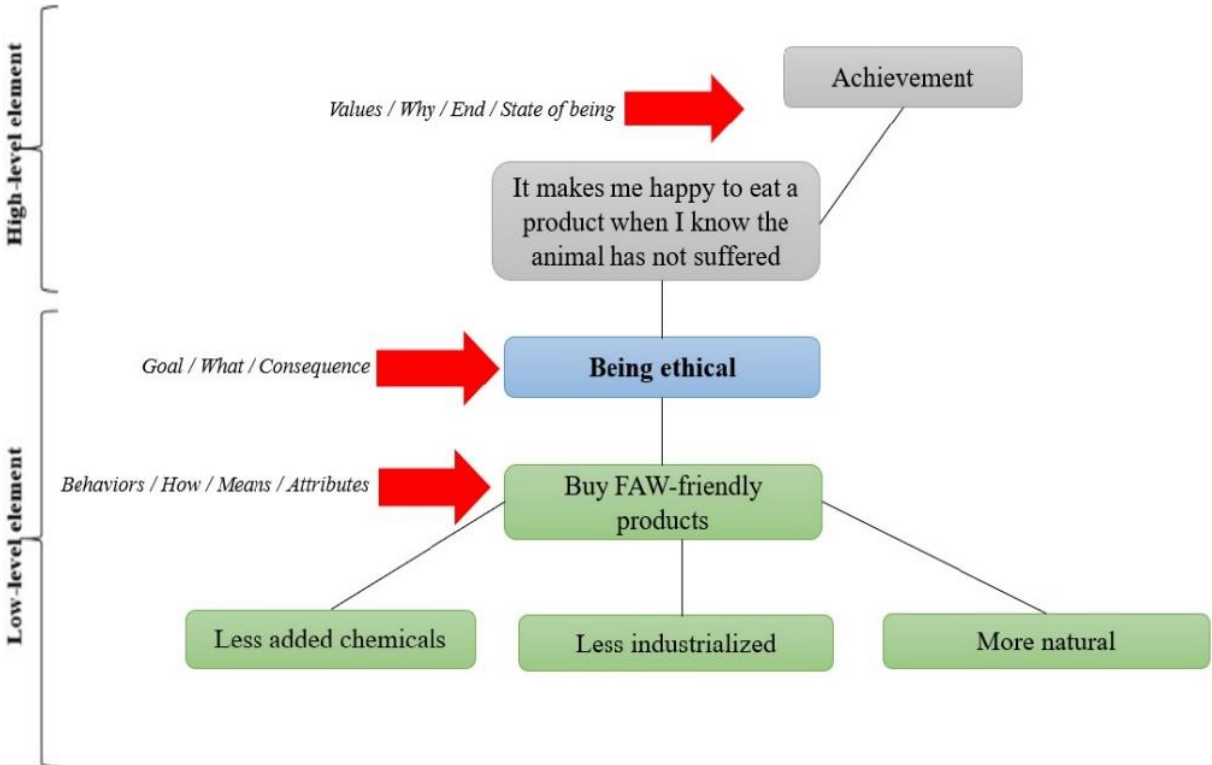

Figure 1 An example of a mental model using MEC, own elaboration (Pieters et al., 1995)

In summary, the MEC theory framework is useful for studies within the marketing field, such as this one. In marketing, the consumer's focus is of high importance (de Souza Leao and Benicio de Mello, 2007; Arsil, Bruwer, and Li, 2016). Thus, it is imperative to know and understand consumers by gathering essential insights into their behaviour, including attitudes, perceptions, and choices (de Souza Leao and Benicio de Mello, 2007; Arsil et al., 2016). The MEC theory in this study has two purposes. One is being a guideline for analysing and understanding all the data gathered through the ZMET tool's application. The other is to yield essential insights from consumers and create a consumer mental map. Such a map will allow us to interpret the structure that elucidates the abstract motivations, i.e., is a conceptualization of consumer behaviour that integrates the what, the how, and the why in a single model (Pieters et al., 1995). It seems understandable to use this theory since we investigate the nature of a group of Mexican consumers' perceptions towards FAW in animal-based food.

Within the MEC theory framework, it is possible to draw two assumptions. The first assumption is that the Mexican consumers value animal-based food to the extent that they feel that such consumption leads to a self-relevant consequence. The second assumption is that FAW is either some abstract attribute, consequence, or value, of animal-based food (Miele and Parisi, 2000). Thus, this study investigates what attributes, consequences, and values the respondents -in their role of consumers- evoke when forming a meaning for FAW.

2.4 Schwartz's personal values theory

Values characterize cultural groups, societies, and individuals. Values can trace a change within a time frame, and explain the motivational bases of attitudes and behaviour. A value has a varying degree of importance, i.e., value X might be significant for person A, but not significant for person B. In the values theory, values adopt a conception founded in six features (Schwartz, 2012), see *Table 1*.

Table 1 Six main features of values according to Schwartz, 2012

Main features	Description
1) Values are beliefs	Values are linked to affection, since they usually come with a feeling
2) Values refer to desirable goals	Values motivate an action to achieve such goals
3) Values transcend specific actions and situations	They are aplicable and relevant in different actions or situations, they are not for a specific action/situation
4) Values serve as standards or criteria	Providing a guide when it comes to select/evaluate actions, policies, people, and events
5) Values are ordered by importance	Individuals have a system of values, where some are a priority, thus, they characterize this individual
6) The relative importance of multiple guides action	Attitudes or behaviors have implication for more than one value

What makes a value different from another is the type of motivation that it represents. For what they represent, values are categorized in ten, see *Table 2*. These ten values can be gathered together in four dimensions, i.e., classified into four categories, since people can pursue more than one value, at different moments, in different settings (Schwartz, 2012). The first category is Self-Transcendence, which includes *1) Universalism* and *2) Benevolence*; in the second category, called Conservation, one finds *3) Security*, *4) Conformity* and *5) Tradition*; moving on to the third category named Openness to change, integrated by *6) Self-direction*, *7) Stimulation* and *8) Hedonism*, and the fourth category, Self-enhancement, integrated by *9) Achievement* and *10) Power*.

Table 2 Ten categories of values with description according to Schwartz, 2012

Value	Description
1) Self-direction	The defining goal of this value is to take action, to choose, to create, to explore; it is perceived as a gasp of autonomy and independence, e.g. freedom, choosing own goals, curious, self-respect, privacy
2) Stimulation	This value is defined by excitement, novelty and taking challenges
3) Hedonism	Such value is determined by the pleasure or sensuous gratification for oneself, e.g. pleasure, enjoying life, self-indulgent
4) Achievement	Personal success through demonstrating competence according to social standards is what defines this value, e.g. ambitious, successful, capable, social recognition
5) Power	Is about social status and prestige, control or dominate people and resources, means to preserve the dominant position within the society
6) Security	Means harmony, stability in society, relationships and one-self
7) Conformity	This value is defined by the restraint of actions, inclinations and impulses that might upset or harm others, e.g. obedient, self-discipline, politeness
8) Tradition	Respect, commitment and acceptance of customs provided by culture or religion, this value demands to meet all the expectations from the past
9) Benevolence	A value that is defined by the preserving and the enhancing of welfare of those one is in frequent personal contact, is about the voluntary concern for other's welfare, e.g. helpful, honest, sense of belonging
10) Universalism	It is defined by the goal of understanding, appreciate, tolerate, and protect the welfare of all people and the nature, is being concerned for the society, the world and the nature, e.g. broadminded, social justice, environmentalism

Such values are the desirable and trans-situational goals that guide humans' lives; values are the desired end-state in humans (Hansson and Lagerkvist, 2015). Values are relevant when aiming to develop an understanding of several social and psychological phenomena, such as cognitive structures (Bardi and Schwartz, 2003). The value theory is a suitable and repeatedly used instrument when studying cognitive structures (Schwartz,1992; Roccas, Sagiv, Schwartz, and Knafo, 2002). Thus, the personal values theory developed by Schwartz (1992) in this study will help us examine the respondents' cognitive structure and discover the desired end-state when forming a meaning for FAW in animal-based food.

3 Method

In this chapter, the reader can find the choice of a methodological approach for this thesis; next, the course of action containing the details of the different methods applied and how they are applied in this study, are presented in the upcoming pages. This chapter also addresses ethical considerations and quality assurance.

3.1 Choice of approach

The methodological approach choice and its implementation in the thesis is determined by the research questions' nature and limited by the study's purpose. Additionally, the choice of approach should be one that better fits the study's aim (Bryman and Bell, 2011; Bernard, 2011). Thus, to answer the research questions *1) What meaning do animal-based food consumers give to the term farm animal welfare (FAW)? and 2) What attributes, consequences, and values are used by animal-based food consumers when forming a meaning for farm animal welfare (FAW)?*; a qualitative approach has been chosen since it is suitable when the researcher seeks to understand meanings, describe and understand experiences, ideas, beliefs, and values, i.e., the intangibles such as those expressed in the research questions (Hernández-Sampieri, Fernández-Collado, and Baptista-Lucio, 2010).

A qualitative study is more oriented towards discovery, towards processes; a qualitative study is a conscious search for meaning and understanding, looking for in-depth comprehension and awareness of the problem and phenomena in focus (Tuli,2010; Kapoulas and Mitic, 2012). Hence, as this study aims to provide a deeper understanding of animal-based food products consumers' perceptions in Mexico when forming a meaning for FAW, it seemed pertinent to apply such an approach. Finally, this qualitative study will adopt a deductive method because it commences with an existing MEC theory, for instance. Such theory becomes the guideline for all the data gathering and the ZMET method process, converging perfectly with the standard in marketing research, which has historically emphasized the appliance of deductive methods when exploring consumers' matters (Hyde, 2000).

When it comes to data collection, the interview is probably the most widely employed method in qualitative research (Bryman and Bell, 2011). Therefore, this will be the selected method for gathering data. However, the modality for the interview is an in-depth interview. The in-depth interviewing is a qualitative research technique that involves conducting intensive individual interviews with a small number of respondents to explore their perspectives on a particular idea, program, or situation (Boyce and Neale,2006). In this case, this study seeks to explore the respondents' ideas on FAW.

The in-depth interviews are conducted using the Zaltman Metaphor Elicitation Technique (ZMET). This research tool surfaces the mental models that drive consumer thinking by using visual and other sensory images to elicit metaphors (Zaltman and Coulter, 1995). The ZMET incorporates laddering probes during the interviews. Thus, it becomes capable of building the connections and skeletal structure found in a traditional laddering study. Moreover, it combines laddering with the strength of metaphor elicitation, making it a useful tool. This combination results useful because 1) it describes, in the respondent's voice, the meaning of the concepts and ideas in the mental model, and 2) it helps to understand more in-depth the linkages that form the consumers' mental structure towards a concept like FAW, for instance (Christensen and Olson, 2002).

When interviewing using ZMET, a laddering procedure in one of its ten steps will take place. Laddering matters because it is a set of thought examinations that tend to discover variables in a Means-end chain basis (i.e., organizing them into attributes, consequences, and values). Thus, the result will be a set of causally related constructs (i.e., meanings), according to Zaltman and Coulter (1995). It is essential to know that, across different studies, laddering is used in consumer research as a tool to derive consumers' means-end chain in relation to the consumption of products (Hansson and Lagerkvist, 2015). Zaltman and Coulter (1995) highly recommend integrating both techniques since it is a proven effective way of getting consumers to articulate the constructs and the relationships among constructs, apart from ensuring that associated ideas and relevant connections among the constructs are being understood.

3.2 Course of action

This section contains the methods applied in this study, and such was the Zaltman Metaphor Elicitation Technique (ZMET), which incorporates laddering probes; this tool was used when in-depth face-to-face interviewing with the respondents of this thesis. Furthermore, detailed information on the ZMET and its execution in this thesis is provided; the reader can also find why interviewing was an excellent tool to gather data. Finally, the laddering technique is explained further altogether with the way I proceeded to apply it.

3.2.1 The Zaltman Metaphor Elicitation Technique (ZMET)

ZMET is a patented research tool developed in the marketing research area, designed for two reasons: 1) to surface the mental models that drive consumer thinking and behaviour and 2) to characterize these models into actionable ways using consumers' metaphors. Applying this technique results very useful since it provides with vital information to understand: consumers, images of brands, products, companies, brand equity, product concepts, and designs, product usage, purchase experiences, life experiences, consumption context, and attitudes towards business, according to Zaltman and Coulter (1995). When implementing the ZMET, consideration of particular instructions is critical. Therefore, such instructions are mentioned in the following paragraphs.

ZMET requires a recruiting process, where approximately 20 people are needed to be the respondents. When participation is confirmed, the respondents are instructed to either 1) take/collect pictures themselves from different sources such as magazines, books, newspapers, internet, etcetera, or 2) are given a set of images. These pictures represent what the topic studied means to them; for instance, it is the FAW topic for this study. The respondents will have seven days to obtain the pictures or study the images they were given (Zaltman and Coulter,1995; Lagerkvist, Juma Okello and Karanja, 2015). It is essential to highlight the importance of the pictures since Damasio (1989) suggested that images are a useful tool since they encourage respondents to communicate better.

Next, an interview is scheduled. The interview requires a guided conversation because this kind of interview surfaces more relevant insights from the respondents' mind, that is why it has been stated the use of in-depth interviews in the previous paragraphs, due to its flexibility and the more relaxed atmosphere (Zaltman and Coulter, 1995; Boyce and Neale, 2006). The interview will take around two hours, and is planned to follow all of the ZMET's ten steps, which are described briefly below. The ten steps recommended to be addressed during the development of the interviews are in accordance to Zaltman and Coulter (1995), as follows:

1. *Storytelling.* This step is an opportunity for the participants to express their stories. The human memory and communication are proven to be story-based. The respondents arrive at the interview after seven days working on the pictures, with a story to tell.
2. *Missed issues and images.* The interviewer asks the respondent if there was an issue when collecting or studying the pictures. If so, the respondents must describe such issues with a picture. Therefore, any issue that might come to the respondents' mind after or during the gathering is covered.
3. *Sorting task.* The respondent organises the pictures into piles, labelling and describing each pile. Here, the major constructs relevant to the respondent are established.
4. *Construct elicitation.* Here the laddering technique takes place. First, the respondents choose three images randomly, then the respondents must explain why they have chosen such images, and how can two of the images be related, but one of them is not. The goal is to identify the entry constructs and give the go signal to the laddering because this prompts the "hidden meanings" (Hansson and Lagerkvist,2015; Khoo-Lattimore and Prideaux, 2013). Secondly, when the respondent has described the duo relationship and the single picture, the interviewer retakes the constructs identified and asks the respondents to find "why is that important." The "why" questions force the respondent to climb a mental ladder until it is reached a point where the importance of an issue cannot be further motivated (Hansson and Lagerkvist,2015; Khoo-Lattimore and Prideaux, 2013).
5. *Most representative image.* The interviewer asks the respondent which picture is the one that represents the most her/his feelings about FAW. The respondent explains why he/she has chosen that picture, and simultaneously, the interviewer identifies either positive or negative feelings.
6. *Opposite image.* To understand what something is, it is necessary also to know what is not. Thus, the interviewer asks the respondent to describe a picture of what is not FAW. There is always a clue of opposite meaning in any concept or human construct (Brunette and Wills, 1989).
7. *Sensory image.* The respondent is asked to use other senses to convey what does and does not represent the explored concept. In other words, each individual must tell what is and what is not the taste, the smell, the touch, the colour and the sound related to the concept subject to investigation.
8. *The mental map.* The interviewer and respondent review together the constructs discussed and checks 1) if something is missing and 2) if the constructs represent accurately what the interviewee meant.
9. *The summary image.* The interviewer asks the respondent to do a collage. Such contains the constructs that are more important to her/him. The collage is executed by scanning the chosen pictures, dropping them into a picture editing software, and letting the respondent give the shape, details, or elements that she/he wants to. Thus, the respondent's thinking about the topic studied is fully expressed.
10. *The vignette.* In this step, the respondent is asked to create a "short video" in their minds. Such will help to communicate important issues related to the research topic.

When using the ZMET's ten steps, the outcome is a "mental map" where the researcher can codify the non-verbal data and present it graphically in a Hierarchical Value Map (HVM). This map involves the Means-End Chain (MEC) theory's assumptions, i.e., the attributes, consequences, and values, such are organized hierarchically. They form links according to the abstraction level of each construct surfaced during the interviews (Kania and Gruber, 2013). Moreover, using the ZMET is advantageous since humans tend to think better in images, which means that the spoken language is not enough to generate a substantial picture when describing a mental picture. ZMET can reveal both 1) a hidden construct and 2) a deep meaning, per

Zaltman (1997). For this study, the ZMET tool was fully implemented, meaning that all of the ten steps were carefully followed and applied, considering all the recommendations established by Zaltman and Coulter (1995).

Overall, in this study, the ZMET tool was implemented as follows: 1) *storytelling* step, where I asked the respondents about how is that each of the ten images, they have gathered represents FAW, they started telling the story of each image. Then, for step 2) *missed issues and images*, I asked respondents if they have encountered any issue by gathering all the images and if they could describe the image they could not find; for step 3) *sorting task*, I indicated the respondents to create an unlimited number of groups with the images, to choose a label / title for it, and to make a short description of each group; moving on to step 4) *construct elicitation*, respondents were told to choose three images and explain how is that two of them can be a related but a third cannot; on step 5) *most representative image,* I asked the respondents which image represented better their feelings towards FAW; for step 6) *opposite image*, the respondents were told to describe me an image of what wouldn't be FAW for them; in step 7) *sensory image*, I asked the respondents what was and what was not the taste, the smell, the touch, the colour, and the sound of FAW; step 8) *the mental map*, consisted in checking with the respondents my notes with their answers; in step 9) *the summary image*, I indicated the respondents to create a collage, and finally on step 10) *the vignette*, the respondents were told to create a short video or a motion scene about FAW.

3.2.2 Interviewing

In-depth interviews are suitable when the researcher needs detailed information about an individual's thoughts. In general, qualitative researchers rely on face-to-face interviews when semi-structured and in-depth interviews are to be conducted (Sturges and Hanrahan, 2004).

When using in-depth interviews, richer information is gathered, differing from other methods such as surveys or focus groups. The information yielded with in-depth interviews is richer than the one yielded from other methods since 1) the respondents talk freely, expressing detailed beliefs and feelings on a topic; 2) the respondents can analyse the motivations for a particular action and are always listened. Such gives the feeling of empowerment, something unusual with other methods (Webb, 1995; Stokes and Bergin, 2006). Thus, when conducting in-depth interviews, the respondents feel more comfortable with having a face-to-face conversation with the interviewer than by telephone. It creates a relaxed environment with excellent conditions to best gather their insight (Boyce and Neale, 2006). Moreover, telephone interviews were disregarded for the matters of this study, since this kind of interviews tends to be more appropriate only for short, structured questions and particular situations (Harvey, 1988; Frey and Fontana, 1991; Rubin and Rubin, 1995; Sturges and Hanrahan, 2004).

The respondents for this study were approached in one of the most prominent Mexican supermarkets, named Chedraui. First, I went to the supermarket's animal-based food section, and while standing there, I observed and checked the possible respondent to meet two requirements 1) have chosen an animal-based food item, and 2) that it was a woman.

For this study and to avoid the bias of choosing only women, one needs to understand two things. Firstly, in literature, a "head of household" is an individual responsible for satisfying everyone's basic needs at home, such as eating (Chant, 1997). Secondly, only women were chosen based on the results from earlier research carried out by Villareal and Shin (2008). In this research, statistical analysis from sources like the National Survey of Household Income and Spending and the World Bank data on income and equality was performed. It concluded

that in Mexico, the head of a household is commonly identified as a woman. In Villareal and Shin's (2008) research, the female-headed households are divided into two: a woman living alone or a woman having a partner, but when talking about both kinds of households, we refer to them as a whole "female-headship households."

Villareal and Shin's (2008) research indicates a large presence of female-headship households in Mexico with steady growth over the years, passing from 13,96 per cent in 1992 to 20,01 per cent in 2002. Moreover, according to a survey carried by Miranda-de la Lama, Estévez-Moreno, Sepúlveda, Estrada-Chavero, Rayas-Amor, Villaroel, and María (2017), women are recognized in Mexico as the ones who tend to be more interested in FAW. Results from this study pointed at women like the ones in charge of the purchasing decision and "do" the groceries for their family, i.e., the head of the household, thus, to be focused only in this group -the one that makes the purchasing decision solely- seemed more suitable for this research.

Then, once the potential respondents met the two requirements, I approached them and invited them for an in-depth interview. If they agreed, a letter with instructions was handed to them. In this letter, the study's purpose, the kind of interview, the length, place, and the instructions on how to collect ten images were clearly stated. The number of images to collect was set on ten, given the fact that several similar previous types of research tend to instruct respondents to collect from 8 to 12 images (Hansson and Kokko, 2018; Sugai, 2005; Christensen and Olson, 2002), so to collect ten images is definitely within the tendency. It is essential to mention that no concept, definition, example, or further information on FAW was provided to any of the respondents. Instead, it was indicated, *"please collect ten images that represent farm animal welfare for you"* this was done to increase the spontaneity and the chances to get a more authentic insight.

The interviews took place in the town's library, due to the insecurity situation hitting Mexico. According to a survey by Mexico's Chamber of Deputies Research Centre, 58 per cent of respondents feel insecure where they live, and 68 per cent believe that they might become victims of a crime (Lohmuller, 2016). In addition to the Public Security System's statistics that reported a total of 18 505 murders in 2017, a 23 per cent rate of growth compared to 2016 (El Universal, 2017). Thus, I found it pertinent to conduct the interviews in a public place like the town's library, to protect the respondents' integrity, my integrity, earn the respondents' trust and ensure a relaxed atmosphere for both parties.

3.2.3 Laddering

Firstly, it is essential to mention that the ZMET tool incorporates the laddering in one of its ten steps; the ZMET applies the laddering probes in the construct elicitation step. This integration of laddering is the main advantage of using ZMET (Natarajan and Kumar, 2016). Secondly, I considered pertinent to define what laddering is per se. Thus, laddering is a questioning technique that allows establishing a hierarchy of concepts. It has been used in the past, supporting its utility when it comes to elicitation. It is the most general approach when identifying and representing the content and the structure of the consumers' mental model for products or brands (Corbridge, Rugg, Major, Shadbolt, and Burton, 1994; Christensen and Olson, 2002).

The laddering interviews are a qualitative method that provides this study with two things 1) perceptions of the FAW concept and 2) comprehensive research of the structure of the concepts relevant for the consumer. Such a statement is supported empirically in the work of Roininen,

Arvola, and Lähteenmäki (2006), where they used the laddering technique for studying local food concept among consumers.

Additionally, the effectiveness of laddering is seen in Christensen and Olson's (2002) study. In this study, it is concluded that using the laddering method during in-depth interviews allows one to understand the deeper bases of consumer decisions by attending to the various consequences of a choice and which final result was the identification of a personally salient end state or consequence. The laddering technique is based on the MEC theory; hence, the outcome is a rich and useful representation of what attributes, consequences, and values signify to an individual (Roininen et al., 2006). An advantage of using laddering is that the meanings uncovered are personally relevant, and the results are closely related to preference and choice behaviour. It is also widely used in the food research area, Roininen et al. (2006) argued.

A laddering interview can be soft or hard, being the main difference that in soft laddering, the participant has some freedom to move into the ladders. In contrast, in the hard laddering, the participant is forced to focus on one ladder at once (Hansson and Lagerkvist, 2015). Soft laddering use is recommended when there is a previous knowledge scarcity of the participants' cognitive map. Also, it is usually employed in studies with few subjects, and that is more exploratory research with broader and abstract topics (Hansson and Lagerkvist, 2015; Costa, Dekker, and Jongen, 2004). In this case, the Mexican respondents' cognitive map remains unrevealed, and FAW is a broad and abstract concept, thus, the decision to apply soft laddering as well.

The advantage of using soft laddering is that the interviews were conducted in a way that encouraged a natural and redundant flow of speech, meaning that the interviewer reconstructs ladders only after the interview and where the respondent's natural flow of speech is restricted as little as possible (Grunert, Sørensen, Johansen and Nielsen, 1995). Moreover, using soft laddering makes it possible to obtain less biased, more comprehensive, and detailed representations from the respondents during the interviews (Costa, Dekker, and Jongen, 2004). Nevertheless, before using laddering, I had first to go through three of the ZMET's steps - storytelling, missed issues and images, and sorting task-, from which I identified the entry constructs within the respondents' answers. Once this was done, I addressed the construct elicitation step -which involves laddering-.

Laddering was applied during the interviews by formulating the following question to the respondents: *"You mentioned earlier (such entry construct), why is that important for you?"* so the answer gave me another construct, which I used to ask again *"Why is that important to you?"* so the respondent climbed a ladder, another ladder, and another ladder until it was no longer possible to motivate further. In each ladder, the respondent mentioned constructs that were identified as either an attribute, a consequence, or a value. These elements together are the basis for creating the HVM map and identifying the resulting MECs.

To build the full HVM, I carried out the same procedure with the 15 respondents so that I could identify all of the attributes, consequences, or values during the content analysis; the respondents sometimes expressed the same construct, but with different words. Therefore, these similarities were merged in a single category known as master codes, following the suggestions of Grunert et al. (1995) that stressed to have a certain level of abstraction during the coding of the data.

However, to avoid a vast assortment of categories with weak links and frequencies, a more radical approach is encouraged (Grunert et al., 1995). One must raise the level of abstraction.

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For example, if a respondent said *"a product free from chemicals"* and another respondent said *"a product without toxic substances"*, in essence, they are saying the same, so both were merged into a category named *"Free from chemicals"* which is the master code, see *Table 3*.

Table 3 Summary of content/master codes

Attributes		Consequences		Values	
Free from chemicals	1	Dignified slaughter	13	Wellness	33
Healthier product	2	Freedom of movement	14	Being compassionate	34
Higher quality	3	Free from stress	15	Achievement	35
Cruelty free	4	Access to natural food and water	16	Belonging	36
Artisan made	5	Non forced reproduction	17	Self-esteem	37
Better taste	6	No pain/ Painless life	18	Family	38
Expensive	7	Dignified life	19		
More natural	8	Non alteration in the animal's natural development	20		
Ethical product	9	Access to medical care	21		
Freshness	10	Possibility to have motherhood	22		
Ecological	11	Access to rest/sleep	23		
Run free	12	No overexplotation	24		
		Access to socialize with their own specie	25		
		Basic needs covered	26		
		Access to outdoors/indoors	27		
		Recognizition of animals as sentient beings	28		
		Access to recreation	29		
		Possibility to establish a family	30		
		Cleanliness	31		
		Handled with care	32		

It is stressed by Lagerkvist and Hansson (2015) that not all respondents can view FAW at the same level of abstraction, which means that the individual MECs are started at different levels of abstraction. For example, what a respondent views as an attribute can be viewed by another respondent as a consequence. Hence, the need for using the same cut-off level of two through the whole Hierarchical Value Map.

The central tool in the analysis of laddering data is the Hierarchical Value Map -HVM-, which is obtained by the application of the MEC theory premises and the laddering - embedded in the ZMET's construct elicitation step -, this HVM organizes relevant information from the interviews, surfacing the connections between all the constructs (Grunert et al., 1995). The HVM summarizes all interviews by graphically representing the respondents' ways of thinking towards a particular topic (Reynolds and Gutman, 1988; Reynolds and Whitlark, 1995; Gengler and Reynolds, 1995; Lin, Lee and Horng, 2011). The use of the HVM is among the most popular methods when analysing laddering data. The advantage of using such lays on the fact that it provides a very well-organized summary of all the information yielded in the interviews, which is graphically built with nodes and lines that are linked to each other (Lin et al., 2011).

In practice, when building up this HVM model, one must know that there is a cut-off value that determines the number of times a link must be established to be part of the graphic HVM (Costa, Dekker, and Jongen, 2004). By specifying the cut-off value, one makes sure that all the essential links are included (Grunert et al.,1995). There is a trade-off when determining such value since the existence of a theoretical or statistical criterion to select the value is null. Still, there is a suggestion of using a concentration index, and this is the percentage of all links in a given implication matrix (see *Appendix 1*) that is retained at a given cut-off level, divided by the

percentage of cells in the implication matrix retained (Grunert et al.,1995). This concentration index was calculated since it ensures that the HVM represents the highest possible number of links. Such calculation is presented below in *Table 4*.

Table 4 Concentration Index

	CELLS	LINKS	% LINKS	% CELLS	CONCENTRATION INDEX
Total	420	843	100	100	
With cutoff at 3	67	312	37.01	15.95	0.4
With cutoff at 2	178	563	66.78	42.58	0.6

Following the suggestion, the concentration index is highest when the cut-off value is set at two. However, several studies' typical cut off level recommendation is between three and five, when one has around 50-60 respondents (Reynolds and Gutman,1988). In this thesis, the number of respondents is 15, being lower than the typical recommendation. Nevertheless, it is highlighted that when using ZMET, a group of 15 respondents far surpasses *"the heuristic threshold required to assure saturation in the study"* (Christensen and Olson, 2002, p.483). This is also supported by Zaltman (1997), stating that "*at most, data from four or five participants [...] are generally required to generate all of the constructs on the consensus map"* (Zaltman, 1997, p. 432).

Hence, I had calculated different cut-off levels, encountering that when setting it at three, the HVM obtained did not show relevant links either a vast number of elements. When using the cut-off level at two, the HVM obtained had significant links and a vast number of elements. The cut-off level is determined at two because it represents the highest concentration index, and the HVM obtained is more substantial.

3.3 Ethical considerations and quality assurance

When conducting a qualitative study, some ethical issues are implied. According to Bryman and Bell (2011), these can be unfolded in four areas 1) whether there is harm to participants, 2) whether there is a lack of informed consent, 3) whether there is an invasion of privacy, and 4) whether deception is involved. Therefore, this study attempts to avoid any harm to participants by maintaining the confidentiality of records and anonymity of accounts, i.e., the identities and records of the individuals participating will remain confidential and anonymous (Bryman and Bell, 2011).

This study avoids the aforementioned ethical issues by implementing the following: To avoid a lack of informed consent, an interview consent form and the detailed study's information sheet -containing the research aim, the method, and what is the expected outcome- was handled to every respondent at the time of the interviews, as long as the participation was confirmed. I have stated total disposition for kindly provide any further information before, during, and after the interviews to all the respondents, highlighting that their participation is voluntary and can be withdrawn at any time, per Bryman and Bell (2011).

It is important to stress that the detailed study's information sheet and letter of invitation for interview participation mention FAW. However, a definition of it is not provided since the author expects to get a more precise and spontaneous meaning of what FAW is for each

respondent. The decision of how much information the respondents should receive about the research's topic is up to the researcher (Kvale and Binkmann, 2009).

The consent form tackles the deception issue, ensuring that the researcher never lied to the respondents regarding research goals, methods, and expected outcomes (Liong, 2015), everything is specified in the consent form. In terms of all the information presented in this text, I can assure the readers that it is transparent and never manipulated with bias. If encountering inconsistent situations with the researcher's personal beliefs and values, the information is never changed (Liong, 2015).

For amending the invasion of privacy issues, the respondents were informed that all the personal data handled in the process will remain confidential. When it comes to their answers, the respondents were not explicitly told that their answers would remain anonymous. Yet, I accepted and guaranteed it if they explicitly requested anonymity. Anonymity is highly debatable given the fact that Kvale (1997) holds that anonymity prevents studies from transparency, a basic principle in research, yet, as Trost (2010) argued, anonymity should always be prioritized in the research of qualitative nature. Thus, I followed this last premise, also considering that anonymity is assumed to be an integral feature of ethical research (Grinyer, 2009). The decision of not telling respondents explicitly about the anonymity of their answers lays in the fact that: if the researcher tells the respondents that their answers will remain anonymous, they might feel that ownership of their answers is taken away from them, and they may be less likely to self-disclose important information, affecting the quality of the results in the research (de Jager, 2015).

Quality assurance means that the author meets the reliability and validity criteria to present an acceptable and good thesis. Reliability in qualitative studies means consistency (Leung, 2015). A standard recommendation is that one achieves reliability by displaying in the research and analysis, constant data comparison, comprehensive data use, and the usage of tables (Leung, 2015; Silverman, 2014), which in this study is seen among the chapters *2 Conceptual framework, 3 Method* and *4 Results*.

Validity is the meaning and relevance of the research components, i.e., the research measures what it is intended to measure (Drost, 2011). When it comes to qualitative research, validity is understood as the appropriateness of the tools, processes, and data. One says that validity is met when: the research question is valid for the desired outcome, the choice of methodology is appropriate for answering the research question, the design is valid for the methodology, the sampling and data analysis is appropriate, and finally, the results and conclusions are valid for the sample and context (Leung, 2015). Validity can be assessed in this research by noticing that the use of MEC theory accompanied by the ZMET tool is proven to be adequate in previous research that investigates consumers' cognitive structures, which this study does (Reynolds and Gutman, 1988; Reynolds and Craddock, 1988; Pieters et al., 1995; Reynolds and Rochon, 1991; Christensen and Olson, 2002).

Moreover, integrating laddering probes into ZMET interviews allows us to build connections. Thanks to its metaphor elicitation, it goes further to describe, in the respondent's voice, the actual meaning of the concepts and ideas in the mental model. In other words, I get to know what thoughts and feelings are evoked when forming a meaning for the object of inquiry (Christensen and Olson, 2002), i.e. FAW. Thus, given the appropriateness of the chosen methodology and the methodology itself, results possible to answer the two research questions, which is further motivated in chapter *4 Results*.

4 Results

In this chapter, the results from the in-depth face-to-face interviews are presented. The reader is provided with a brief background of the empirical study. Later, the empirical results yielded from the fifteen interviews, and the application of the ZMET is described step by step, being ten steps in total. The Hierarchical Value Map (HVM) is presented and explained, where also relevant ladders are analysed in terms of MEC.

4.1 Background of the empirical study

Veracruz is the biggest and most important city of the Mexican State, Veracruz de Ignacio de la Llave, see Figure 3. It has the most important commercial port in Mexico, 552 156 inhabitants and a territorial extension of 261 square kilometres (Instituto Nacional de Estadística, Geografía e Informática, 2011).

Figure 2 Localization of Veracruz city where the study was conducted, own elaboration

When it comes to the agro-livestock sector, Veracruz has become the sixth exporter of meat in Mexico, with 30 per cent of its production designated to foreign markets such as the United States, Canada, Japan, Hong Kong, Vietnam, and the Emirates. Veracruz produces 14 per cent of poultry at a national level and occupies the third place as the biggest agri-food producer in Mexico (Paredes, 2018). Thus, it seemed pertinent to conduct the interviews in this city.

A total of 15 respondents agreed to participate. At first, I aspired to get at least 20 respondents. However, the country's security situation makes it difficult for people to trust in a "stranger," even if they are friendly and academic. When finally achieving a fair number of respondents within the average number of respondents used in previous research, all of the respondents were given seven days to collect their images from any source. To notice that seven to ten days is the standard time recommended to be given by Zaltman and Coulter (1995). The respondents were also instructed to send me the ten pictures one day before the interview, for me to print them and take them to the interview place.

When time passed, the in-depth interviews took place in the Veracruz's town library, where all the respondents showed a fair degree of commitment and excitement. Also, all the respondents

have studied previously the pictures they have selected, creating a comfortable, confident, and smooth atmosphere. The descriptive statistics of the respondents can be seen in *Table 5*.

Table 5 Descriptive statistics of the respondents

Variables	Average value	Median
Average age	32.93	27
Respondents with higher education	33.33	*n/a*
Number of men	0	*n/a*
Number of women	15	*n/a*
Family size	3.73	4

This study obtained a total of 198 ladders, 304 identified constructs, 38 MEC codes or master codes, 843 total links, from which 234 are indirect, and 609 are direct. It is essential to understand the difference between a construct and a master code. The constructs are identified after a thorough review of the verbatim notes from the interviews. These constructs are a set of ideas and concepts that better represent the expressed view of each respondent. In contrast, the master codes are originated after a content analysis is performed, where similar constructs are merged into a single category (Veludo-de-Oliveira, Ikeda and Cortez, 2006; Grunert et al., 1995).

4.2 Zaltman Metaphor Elicitation Technique (ZMET) results

4.2.1 Storytelling

During this step, the respondents were asked to describe each of the ten images they had collected and mentioned how each picture they had chosen represented FAW for them. Here, it is necessary to highlight that all the pictures brought by the respondents included both views: what is FAW and what is not FAW, although they were explicitly instructed to gather ten pictures of what FAW meant for them.

One of the most mentioned statements during this step was, *"I do not like to see the animals suffering."* For example, the photos displaying pain, hurt, torture, industrial agriculture, machines, illness, death, confinement, and caged were attached by the respondents several times to animals' suffering. Inferring that these characteristics are the ones that build up the negative view of FAW, i.e., what is not FAW for the respondents. In contrast, the phrase *"FAW is happy animals"* was always mentioned at first by several respondents before moving into the description of the pictures. Such could indicate that before applying the laddering method, in this initial phase, the overall meaning that respondents had of FAW was *"happy animals."*

When describing the photos, another consistent statement was the concern for *"letting the mothers enjoy the childhood of their baby cow, baby lamb, chicks and piglets."* Many of the pictures had an adult farmed animal with its cubs in a green landscape, implying that the respondents recognized the animals as sentient beings who deserve a life in the most natural environment possible, have a family, and have freedom. Freedom is a concept that is part of the FAW's standards and definition -namely, the Five Freedoms- and it is a point that was frequently approached when respondents said *"animals should run free"* or *"animals should not be altogether in small spaces."*

The most pictured and mentioned farmed animal was the cow; most of the respondents told stories about the cow and the milking processes, attaching the lack of FAW -i.e., what is not FAW- nowadays the machines used at milking and the industrialization of the agriculture. All of the respondents appealed for a more traditional milking, even in the chosen photos, a human milking by hand is repeatedly shown. Consecutively, *"milk tastes better, milk is delicious, milk is more natural when the cow did not suffer"* highlights the milk as the most mentioned animal-based food product. Based on the respondents' answers, it can be seen that they all attached a negative connotation of machine milking and a positive connotation of hand milking.

4.2.2 Missed issues

The respondents were asked if they have any problem finding a picture and describing the picture they could not find. The respondents' most common replies were the inability to find a picture 1) *"without machines and with more human hands,"* 2) *"a real Mexican poultry farm"* and a picture where they could portray perfectly 3) *"human compassion towards an animal being slaughtered."*

For the first issue, a picture *"without machines and with more human hands,"* they explained that they wrote FAW on the browser when searching for the pictures. The first result they got was pictures of free-running animals in green fields. However, as they started to scroll down, the pictures with many machines appeared, and as they said, these machines were *"interfering"* in the *"natural"* processes. Such implies that they have all associated it with artificial, low quality, and non-healthy animal-based food whenever they saw machinery.

Many of the respondents explained that using machines is harmful because, in the old times, the process like milking used to be only a human job, and the respondents believe that we as humans have feelings. However, machines have not, so humans would treat better and gently the cow when milking. Such is particularly interesting because it is contrasting to the modern milking process applied in developed countries. Additionally, the aversion to machine milking can be linked to the lack of information, knowledge, or understanding about the negative consequences of milking a cow by hand. Overall, it shows a lack of knowledge about the benefits of applying FAW guidelines of modern milking.

As for the issue of finding a photo where they could see *"a good and real Mexican poultry farm,"* the respondents explained that several of the photos that show FAW they appear to be from farms in Europe or other parts of the World. In these foreign countries' photos, respondents said that they saw chickens running free in green fields and kept in clean spaces. Therefore, none of the pictures reflects the current Mexican reality in farming practices. The current Mexican reality in poultry farming for the respondents was always displayed in pictures with chickens in small cages, full of dirtiness, unable to move. The lack of *"a good and real Mexican poultry farm"* with the characteristics of a European or foreign poultry farm can be explained based on what the previous literature review indicates: that the FAW topic and research is relatively new in Latin America, particularly in Mexico, hence, the big step towards the change of old, rudimentary and non-FAW practices within the industry, has not yet been done, resulting in the lack of pictures that can depict together the current Mexican farming practices and the ensuring of FAW.

Finally, when the respondents described the issue of not finding an image that materializes *"human compassion towards an animal being slaughtered,"* their main concern was that it is hard to represent what they thought was compassion. When they searched for this kind of image, they only encountered multiple gore pictures of slaughtered animals, making it

impossible for them to continue their search. Such might mean that respondents are highly sensitized towards the respect for animals' lives and deaths. The respondents are widely aware of the farmed animals being sentient beings, and they can empathize with the farmed animals, which deserve a *"non-painful death."*

Overall, this step brought fascinating insights to the table. It allowed the respondents to address the issues that might have come to their mind after they already gathered the photos or even during the first stage of the interview, complementing the first step.

4.2.3 Sorting task

The respondents were told to make groups with their ten images. There were no limitations in the number of groups they could create. Additionally, the respondents had to choose a title and write a short description for each group they created for this grouping task. The result was that several respondents created three groups, others made four groups, and only one respondent sorted out five groups.

The sorting task step was used because it helped to establish what were the major relevant themes or constructs towards FAW for the respondents; respondents sorted out and titled their groups reflecting what FAW is and what is not FAW, by assigning interesting and diverse titles as 1)*" Ensure farmed animal happiness*" -it is FAW-, 2) *"Human attention and care"* -it is FAW-, 3) *"More humanism, less industrialism"* -it is FAW-, 4) *"Farmed animals suffering"*- it is not FAW- and 5) *"Psycho-emotional stability"*-it is FAW-.

By this sorting task, it was also possible to identify common elements in the respondents' descriptions being these commonalties summarized in phrases like *"dignified life," "family life," "no suffering," "freedom,"* and *"no machines."* A highlight goes for *"family life,"* which was frequently written in their descriptions. To illustrate better this, I take two respondents as an example, see below.

Respondent five had sorted out three groups. The group one was titled *"Family development,"* the group two was titled *"Dignified life,"* and the third group was called *"Harmony human-animal".* The description written by the respondent of the group one was as follows:

> *Group one - "Family development."*
> *This group represents the time that farmed animals should remain close to their mothers, so they can have access to the milk or to the heat of their mothers, which can make them feel good and ensure their well-being and good childhood.*

Respondent three created four groups, the first group namely *"Living sentient beings,"* the second group *"No feelings towards animals,"* the third group *"More humanism, less industrialism,"* and the fourth group called *"Human attention and care."* The description by respondent number three of the group one "Living sentient beings" was written as follows:

> *Group one- "Living sentient beings."*
> *In the pictures I have chosen for this group it is shown how animals should be treated when they are alive, they should be taken care of, they should be fed with quality food, they should run free with their families and grow together, as much and as long as possible.*

Hence, one can perceive the commonalities in the respondents' descriptions, where respondent five and respondent three have different groups. However, one of their groups happens to

approach the same theme: a family life for the farmed animals, i.e., an opportunity of letting the animals create bonds with their species.

The different commonalities in the descriptions and the diverse titles served as the central themes relevant for the respondents when thinking of what the FAW is and what is not. Although such significant themes are still pretty broad at this stage, that is why the next step strives to add some depth and, more positively, to precisely identify what the specific constructs attached to FAW are.

4.2.4 Construct elicitation

The construct elicitation step is where the laddering technique is applied. First, the respondents were asked to choose only three images out of the ten sets. These three images need to be chosen because this specific amount helps to elicit constructs by *"identifying how any two of three stimuli are similar but different from the third stimulus"* (Zaltman and Coulter, 1995, p.41), such it is known as the Kelly Grid technique. It surfaces which variables the respondents use to make sense of FAW. It is important to remark that the Kelly Grid technique and the laddering technique are always used together during the construct elicitation step in ZMET. Both are proven to be *"an effective mechanism for getting consumers to articulate the constructs and the relationship among constructs"* (Reynolds and Gutman, 1988; Zaltman and Coulter, 1995, p.41).

Thus, following the procedure, after they selected the three images, I asked the respondents which two images are related and why is the third one not related. Next, I asked them also to explain why they have chosen such images. While the respondents motivated the relationship and their choice, I carefully wrote their answers, to later identify all of the different constructs surfaced.

When explaining why they selected each of the three images and how they were related, but one was not, all of the respondents at first mentioned different constructs, such as entry constructs. When the entry constructs were identified, the next thing I did was to use this entry constructs and start asking the respondents, *"Why is that important to you?"* this question allowed to elaborate more into these constructs and helped to obtain the ladders, i.e., the foundations of the HVM map.

For example, the respondent number five selected three images: image one portrayed a cow with its calf laying in a green field; image two portrayed a cow standing on a stable with its calves, and image three had a calf standing in a stable alone (see *Appendix 2*).

Respondent number five explained image one's choice as *"this image means that FAW will give you a fresh farm product if the cow had its calf close."* Image two was motivated as *"If you let the cow have a life with the calves probably will give you a product to sell with a high price."* Image three choice was explained as *"in this one, it is represented that is not FAW to let baby cows alone without the mother, even if you do it, you cannot have a quality product."* Additionally, respondent number five related image one with image two because they both showed happy cows that had the chance to be with their calves, resulting in high-quality animal-based food, which meant FAW. However, the respondent expressed that image three was not related because that was not FAW since the calf was alone suffering for not having the mother close compromising the quality: so FAW is the opposite of suffering animals.

What I obtained with these explanations and relationships was the entry constructs of respondent number five. From these entry constructs, I could later identify if these were attributes, consequences, or values by applying laddering probes, i.e., asking why that construct was vital for them.

4.2.5 Most representative image

During this step, I asked the respondents to choose a single picture out of the ten, with the very purpose of knowing which one represented at best their thoughts towards FAW. The result was a series of constructs classified as either attributes, consequences, or values. For example, several respondents have selected a photo that contained at least three of the following elements: green grass, open landscape, and free poultry or cattle. The standard description of the atmosphere in such a photo and their justification was because they could see reflected happy farmed animals that were free and non-stressed.

4.2.6 Opposite image

For everything positive, there is always something negative, or in other words, to understand what something is, it is necessary to know what is not. Therefore, Zaltman and Coulter (1995) suggested this step to request all respondents to imagine and describe a photo that did not represent their feeling towards FAW. Sequentially, the majority of respondents described this photo as containing a *"big"* factory. Inside the installation of this factory, the animals – being poultry and cattle the most mentioned- are all together, being kept in cages and small spaces, stressed and without water or food. When describing the photo, common elements were a dirty place, a place full of blood, a place full of fallen feathers, a place where flies are around because of the dung on the floor, and a space that lacks light.

4.2.7 The sensory image

During this step, I asked each of the respondents to think about FAW in terms of colour, taste, smell, sound, and touch. Next, I specifically gave them two questions *"If FAW was -a colour, flavour, smell, sound or something you could touch- what it would be like?"* and *"If FAW was -a colour, flavour, smell, sound or something you could touch- what it would not be like?"* to gain insight of their positive and negative views of FAW.

All the yielded answers were fascinating, but the most consistent answers were that FAW is a *green* and *white* colour because it reflects farmed animals' access to the outdoors: the green colour is the green fields, and the white colour is the sunlight. On the contrary, non-FAW is *grey* and *red* because these colours represent the sadness; grey is the animal suffering unnecessary and red is the spilt blood when being slaughtered inhumanely.

FAW as a flavour is *sweet* and *delicious*, but non-FAW is *bitter* and *unpleasant* because the slaughtered animal was stressed, and the end product's flavour was impacted negatively. When asked about FAW as a smell, respondents said it smells like *grass* and *freshness*, which means that the animal had freedom of movement and a good alimentation. However, non-FAW smells like *blood* and *dung*, reflecting the animals' space's dirtiness and their suffering when slaughtered. When thinking of FAW as a sound, FAW is the *newly-born calling their mothers*, which means they had the possibility of being kept together, and non-FAW is *groaning*, since the animals are in pain and suffering.

Finally, when the respondents had to think about FAW as something they could touch, they said FAW texture would be *soft fur* or *feathers*, relating it to a cow or chicken being healthy, but non-FAW would be a *rough skin*, which they linked it to an ill farmed animal.

4.2.8 The mental map

A full review of the respondents' answers in my notes is done, to guarantee the accuracy and ensure that every construct accurately represents what they attempted to express, before concluding the interview. I carefully reviewed all the notes with each of the respondents. The notes contained the constructs identified during the guided conversation. Thus, a first sketch that conglomerate all these constructs was built. No significant difficulties neither omitted constructs were perceived or encountered.

4.2.9 The summary image

The respondents were asked to create a collage with the ten pictures they selected. The respondent manually made all the collages. Next, I took a photo of the collages, and I requested a brief explanation of them. The most consistent element when explaining why they arranged the collage that way was: *"it shows the happy life of the animal during its farm life"*. Thus, the respondents have only chosen the pictures that reflected FAW, dismissing the ones that portrayed what FAW is not.

This step is done under the premise that people think differently "in motion" than when they think of still pictures. Hence, by allowing them to arrange the collage themselves, it was possible to "double-check" if some construct might be missing or if an issue might appear, which was not the case in this study.

4.2.10 The vignette

In this last step, I required to all the respondents to close their eyes and image that they were in a movie about FAW, I asked them to narrate me what was happening in that movie, resulting in different stories, for example, respondent one told me this:

> *"I am on a farm, a big farm, I start to walk in the green grass, and I see a hen that is being followed by its cute little chicks, the hen is eating and turn her back to feed the chicks. I look to the left, and I see a stable, so I got close, and there is a cow giving milk to her calves, the calves are happy. Next to this cow, an older adult is milking a second cow, but I can see how kind and delicate he is while milking, he is smiling and I am smiling at him. I am happy!"*

Similarities between the other respondents' stories were found, is the most consistently mentioned elements on their vignettes: a cow with its calves, green fields, running free chickens, and the happiness feeling while watching this scene. The relevance of this step lays in the fact that it helps to communicate essential elements for the respondents when thinking of FAW.

4.3 The Hierarchical Value Map (HVM)

This section addresses the attributes, consequences, and values identified after the interviews and generally, founded on the constructs yielded during the ten steps of the ZMET but,

particularly during the construct elicitation step, where laddering was applied. This section presents the resulted HVM.

4.3.1 Attributes

The resulting HVM (see Figure 4) of all the 15 respondents, displays seven attributes -from a total of 12 attributes identified- that were mentioned and linked to other elements such as a consequence or a value. A cut-off value of two has been set, which means that the attributes with their respective links will only appear in the HVM if they were mentioned more than twice, either directly or indirectly. A cut-off value of two was chosen in consideration of Grunert at al (1995). Per Grunert et al. (1995), a researcher should choose the cut-off level that ensures the highest concentration index. The concentration index is the percentage that represents the highest number of links in an HVM.

The total 12 attributes identified were 1) *Free from chemicals*, 2) *Healthier product*, 3) *Higher quality*, 4) *Cruelty-free*, 5) *Artisan-made*, 6) *Better taste*, 7) *Expensive*, 8) *More natural*, 9) *Ethical*, 10) *Freshness*, 11) *Ecological* and, 12) *Run-free*. From this set of twelve, only seven were linked to other elements more than twice.

The number of times that each of the seven attributes were mentioned is as follows: free from chemicals was mentioned 24 times, this master code includes the avoidance of toxic substances, for example hormones, when raising the farmed animals and the avoidance of putting additives or any artificial substances in final products, which gives hints of a more organic production; more natural was mentioned 41 times and it includes more traditional processes, for example, hand milking and also the avoidance of machines when producing final items, respondents mentioned a less industrialized agriculture; higher quality was mentioned 47 times and this includes superior products than the average ones and this quality is equal to expensive products that respondents are willing to pay for; cruelty-free was mentioned 23 times and includes a final product that ensures the avoidance of unnecessary suffering for farmed animals; better taste was mentioned 17 times and includes products that are more delicious than average; ethical was mentioned 23 times and it includes a product were humans ensure fair processes and take care of farmed animals and; artisan-made was mentioned 26 times and it includes products made by hand from the beginning until the end.

Implying that when forming a meaning for FAW, the respondents think that FAW is reflected as specific and distinctive characteristics in animal-food products, such characteristics are: free from chemicals, more natural, higher quality, cruelty-free, better taste, ethical and artisan-made. It happens to be interesting that all of the evoked constructs towards FAW, are reflected only as positive attributes. Overall, the most recurrent construct in terms of an attribute is that FAW means high quality in animal-based food, given the number of times mentioned and linked to a consequence or value by respondents.

4.3.2 Consequences

There was a total of 20 consequences identified, but, only 16 consequences are visible in the HVM since they have been mentioned and linked to other elements more than twice, either directly or indirectly. The 20 consequences identified are: 1) *Non-alteration of the animals' development*, 2) *Freedom of movement*, 3) *Cleanliness*, 4) *No pain/painless life*, 5) *Access to indoor/outdoor*, 6) *Free from stress*, 7) *Dignified life*, 8) *Access to socialize with their species*, 9) *Recognition of farmed animals as sentient beings*, 10) *Access to natural food and water*, 11) *Non-forced reproduction*, 12) *Access to medical*, 13) *Possibility to have motherhood*, 14) *Dignified slaughter*, 15) *Access to rest/sleep*, 16) *No overexploitation*,

17) *Basic needs covered*, 18) *Access to recreation*, 19) *Possibility to establish a family* and, 20) *Handled with care*.

Thus, from the 16 consequences displayed in the HVM, the most mentioned one was *no pain/painless life* with 66 times and it refers to not make the farm animals suffer, to not hurt or injury them, to not mistreat them and to avoid the use of machines or tools that can possible hurt them; the second most mentioned was *freedom of movement* with 65 times and referring to be able to run and walk, to not be in confined or caged spaces and to not being kept chained or tied; next more mentioned was *free from stress* with 60 times and it includes avoiding making farmed animals stress and reduce stress levels; *non alteration of the animals' development* was mentioned 55 times and refers to ensuring that the farmed animals' are raised in the most natural habitat possible, to not disrupt the animals' natural growth and to avoid any kind of unnecessary surgical intervention; *access indoor/outdoor* was mentioned 48 times and it refers to allow the farmed animals to have access to light, allow them to get fresh air, to ensure they have access to wide open spaces and access to shelter; *access to natural food and water* was mentioned 47 times and makes reference to let the farmed animals to eat "naturally" from the grass or pasture they have in open spaces, access to clean water and access to food*; no overexploitation* was mentioned 41 times and it refers to avoid forced labour in farmed animals and to let them "work" in an average pace.

The *dignified life* was mentioned 37 times and it refers to the right of a life without suffering, to ensure a happy life, to increase the life expectancy in farmed animals and to ensure a high quality of life while the farmed animals last; *access to medical care* was mentioned 27 times and it makes reference to provide the farmed animals with veterinarian attention, to ensure their good health, to vaccinate them, to have a medical control and to not expose them to health threats; *non-forced reproduction* was mentioned 19 times and it refers to ensure that the farmed animals have a natural reproductive cycle and to not forced them to reproduce; with 19 times mentioned comes *access to socialize* with their own specie which refers to farmed animals being able to interact with their own specie; *access to rest and sleep* was mentioned 13 times and refers to allow farmed animals to rest and sleep when they need to; with 12 times mentioned *dignified slaughter* refers to reduce the suffering during slaughter as much as possible, to not hurt them more than necessary and to reduce the pain as much as possible; *possibility to have motherhood* was mentioned 10 times and it refers to allow the mothers the interaction with their cubs, to not take away the newly-born from their mothers and to separate them if necessary at a more natural time.

Finally, *recognition of farmed animals as sentient beings* was mentioned six times, and it involves the respondents feeling empathetic towards farmed animals and their affirmation of farmed animals' ability to feel. Overall, the main implications of these results are that respondents perceive FAW as a guarantee that the farmed animals had a life *free from pain/painless*, given the times this construct was mentioned and linked to others. Besides, it can also be implied that the achievement of all the other mentioned 15 consequences are considered FAW as well; all of them reflecting complimentary views of FAW.

4.3.3 Values

Values were categorized and analysed in accordance to Schwartz's (2012) personal values theory, from the interviews and a rigorous analysis of their answers, three of the ten values proposed by the theory were identified. These are *Universalism*, *Hedonism*, and *Benevolence*. However, before coming up with the identification of these three specific values from Schwartz's theory perspective, first, I had to carefully categorize respondents' answers into six

master codes, which are 1) *Wellness*, 2) *Being compassionate*, 3) *Achievement*, 4) *Belonging*, 5) *Self-esteem* and 6) *Family*. After coming up with these six master codes, I analysed how well they could fit into Schwartz's theory of personal values and how consistent they were in respondents' answers. Resulting in only three master codes being the most remarkable in terms of times mentioned and linked, such are *being compassionate* with 85 times, *achievement* with 58 times and *wellness* with 32 times. Only these will appear in the HVM as the values and would be further discussed below.

The respondents expressed: *"I want to consume a product that does not harm the human health"*, *"I want to eat a product that brings me health benefits"*, *"To consume a product that is good for human health"*, *"Because I want a product that ensures our balanced and healthy life"*, *"It makes me less worried if the animal had freedom because then the product is healthy"*, *"I want to be sure that when consuming that product it will not make me sick"* and *"To improve my health by consuming this kind of products"*. Such statements became merged into the master code *wellness*, because, as we can perceive, all of them seek for health benefits. Such is identified in terms of Schwartz's theory (2012) as the value *Hedonism*, a value determined by the pleasure or sensuous gratification for oneself. In this case, the respondents want to feel healthy. Thus, they look forward to FAW, evoking it as the pleasure of eating healthy.

The master code *being compassionate* was integrated by statements like *"I do not like to see farmed animals suffering because they are sentient beings, I mean, they have feelings too"*, *"I love animals, I like to see happy animals"*, *"I feel empathy for farmed animals, I feel for them"*, *"Because I care that animals had a dignified life"*, *"I feel happy if I know that the animals were happy too"*, *"I feel empathy for the poor slaughtered animal"*, *"Because we are all sentient beings, therefore, we should all be empathetic"*, *"Because I care about their pain, I feel empathy for them, what if I was the one feeling that pain?"*, *"They are animals, they have needs, they need to move, they need no pain, that is why I care"*, *"The planet is a better place if animals killed for the making of our food did not suffer"* and *"If they were happy, I could be happy too"*. This master code was identified as the value *Universalism*, which is defined by the goal of understanding, appreciate, tolerate and protect the welfare of all people and nature. Meaning that one is concerned for society, the world, and nature, per Schwartz (2012). The respondents' statements show that they care about the life and death conditions of the farmed animals, feel empathy for the farmed animals and feel happy if the farmed animal was *"happy"* too. Thus, FAW comes into their minds as this understanding, appreciation, tolerance, and need for protection of the farmed animals.

Finally, the group *achievement* is integrated by statements like: *"I want to give my family a healthy product because I want my family to be okay"*, *"Because I want to avoid any risk or damage in my darling's health"* and *"My family needs to eat healthily and to eat quality things"*. Such belong to the value *Benevolence,* which means to preserve and enhance the welfare of the people that one is frequently in personal contact. The respondents care about their family's health and seek to either preserve or improve their family's health through buying a product that they know it came from FAW practices. Thus, it can be implied that they are keen on consuming FAW-friendly animal-based food that helps them to achieve such purpose.

4.4 The Hierarchical Value Map (HVM) in terms of MEC

The HVM (see *Figure 4,* p.32) is displayed in this section. When observing the HVM, it is crucial to notice that, the bolder the line is in the HVM, the stronger is the link, and that all the links shown are both, direct or indirect. The HVM was created digitally in the program PowerPoint by introducing manually all of the elements that integrates it.
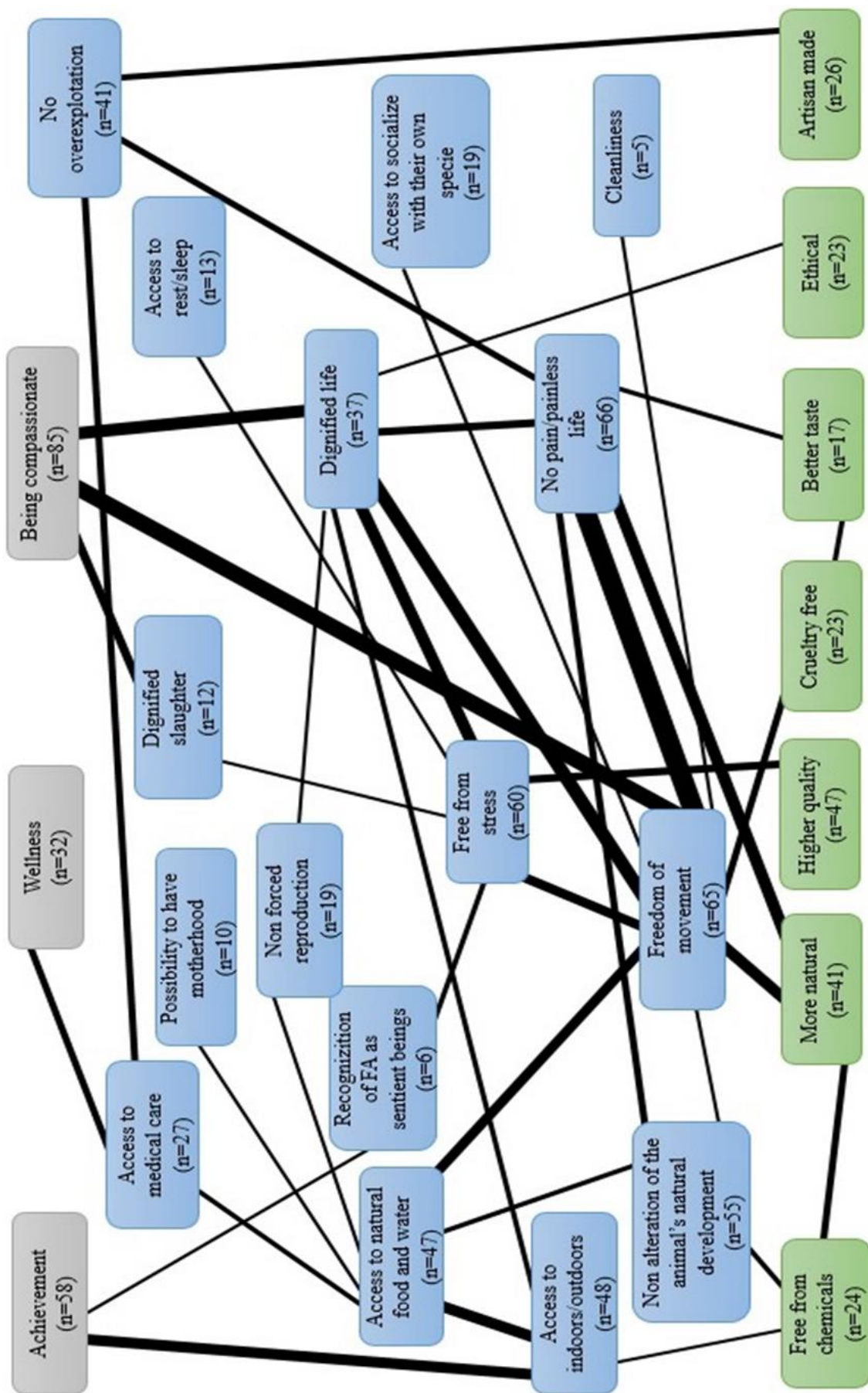
Figure 3 Hierarchical Value Map (HVM) from the fifteen respondents and with cut-off value of two

To start, at the bottom of the HVM (see *Figure 4,* p. 32) is possible to see with green colour, the boxes representing the seven attributes mentioned by the respondents. From bottom to top, situated in the middle area, the blue boxes contain the sixteen consequences retrieved, moreover, in the top, indicated with colour grey boxes are the three values identified.

The letter *n* stands for the number of times an attribute, consequence or value were mentioned and linked with another element of the map. A total of 843 links were retrieved. Only 563 are part of the HVM given the cut-off value of two and their more robust significance, also, to acknowledge that this HVM was created using a total of 38 attribute-consequence-value content codes yielded from the respondents' answers during the interviews.

The HVM suggests that the Mexican consumers interviewed view FAW as being integrated by *free from chemicals*, *more natural*, *higher quality*, *cruelty-free*, *better taste*, *ethical* and *artisan-made*. These FAW's attributes are perceived by the respondents to link several times, either direct or indirect, to the consequence *no pain/painless life*, which observes a total of 66 times. However, a couple of attributes lead indirectly to this consequence, which means that first, the attribute leads to a different consequence. That consequence finally leads to the *no pain/painless life* consequence, whereas only two of them lead directly.

For example, the attribute *more natural* leads first to the consequence of *freedom of movement*, and then this consequence leads to *no pain/painless life*. Simultaneously, the same attribute *more natural* leads directly to the consequence *no pain/painless life* and this consequence lead indirectly to the consequence of *dignified life*. Another direct link is the attribute *better taste* leading directly to *no pain/painless life* and indirectly to a *dignified life*. Such happens because every person forms its mental model and the level of abstraction that stems from it, varies from person to person.

The HVM shows several indirect links. For instance, the attribute *free from chemicals*, leads first to the consequence *non-alteration of the animal's natural development*, leading finally to *no pain/painless life*. The attribute *cruelty-free* leads first to the consequence of *freedom of movement* and after leads to *no pain/painless life*. Four out of seven attributes, go through the consequence *no pain/painless life*, being the attributes *higher quality, ethical* and *artisan-made* the exception of this. The attributes that do not go through the consequence *no pain/painless life* go through other consequences to reach the end state instead. The consequence *no pain/painless life* is the major evoked consequence of the attributes mentioned. Such consequence, links to a *dignified life*, *no overexploitation*, *being compassionate*, *access to medical care*, *access to indoors/outdoors*, *achievement*, and *wellness*.

The elements *dignified life, no overexploitation, access to medical care* and *access to indoors/outdoors* are originated after the attributes, which means that these elements are consequences and not final values. The elements *being compassionate*, *achievement* and *wellness* surfaced as the actual values / end-states perceived by the respondents.
Considering that the bolder the line, the stronger the link is: the strongest link starts in the attribute *more natural* and connects it to the consequence *freedom of movement*, leading to the major consequence *no pain/painless life*, leading to a *dignified life*, connecting to the value of *being compassionate*. The resulting MEC will be A-C-C-C-V. The second strongest link starts in the attribute *more natural*, leading to *freedom of movement* that goes directly to the value of *being compassionate*, observing a shorter MEC composed of A-C-V.

5 Discussion

This study investigated and identified what attributes, consequences, and values the respondents evoke when forming a meaning for FAW. Moreover, through this investigation, it was possible to explore the exact mental model originated when respondents think about what FAW is. During this study, the ZMET tool was the chosen method, yielding results that were further analysed and interpreted founded in the conceptual framework delimited by the MEC theory, Schwartz's personal values theory, and the consumer's perception concept. The use of such an approach resulted in the creation of a robust HVM that included the specific attributes, consequences, and values that represent the formation of meaning for FAW. Such elements serve as the source of a deeper understanding of the interviewed Mexican consumers' cognitive map in terms of FAW.

The study's most significant contribution is the development and application of an approach that has not been used in any of the existing literature related to FAW, at least in Latin America. Particularly in Mexico, there is only an account for two previous studies (Miranda de la Lama et al., 2017; Santurtún et al., 2012) that are related to consumers' perceptions and FAW. The method used in both studies is a survey, which yielded impressive results. The primary conclusion from both studies is that animal welfare is identified as a product attribute and perceived as positive by most of the consumers surveyed. This conclusion is confirmed and complemented with the findings of this study.

Nevertheless, suppose we were to compare this study with these two previous studies, in terms of the approach applied. In that case, it is possible to assume that the novel approach this study decided to adopt is what turns it in the first and only rich in-depth investigation of what is precisely FAW for the respondents. Contributing to the literature, by identifying the specific attributes, consequences, and values evoked when forming a meaning for farm animal welfare. Thus, this study has taken the challenge of using a novel approach which meets the claims made continuously by academics about the need for developing different approaches and frameworks that can improve and reflect better consumers' demands and requirements to primary producers around the world (Faucitano et al., 2017).

Furthermore, this study also embraces the suggestions of previous literature which stressed the requirement of further applications using techniques as ZMET, because by doing so is possible to bring the entire art and science of mapping consumers' thinking to increasingly higher levels. Hence, this choice of approach can be seen as the key contribution of this work, and it is proven to be extremely useful, in terms of providing rich answers for the research questions, i.e. to obtain rich findings (Sugai, 2005).

As mentioned before, this study's key contribution stems merely from the application of the ZMET tool, which is useful for discovering underlying understandings and relationships that people make when creating meaning, in this case, the meaning of FAW (Kokko and Lagerkvist, 2016). The biggest strength of the ZMET tool and application resides in using the respondents' own gathered pictures during the interviews. Such reinforces the humans' visual nature of thinking (Kokko and Lagerkvist, 2016; Damasio, 1989) generating a better *"[…] understanding of the subjective reality that is closer to the truth as experienced by the participants compared with what can be obtained through solely verbo-centric techniques"* (Kokko and Lagerkvist, 2016, p.218).

Concretely, this study creates the first and only mental map of Mexican respondents -as consumers of animal-based food- when they form a meaning of FAW and, the graphical

hierarchical organisation of its elements -in the HVM-. Such is possible thanks to the identification of the attributes (means) that lead to consequences (physiological or psychological results) that help on the achievement of a specific personal value (end state) (Gutman, 1982; Hansson and Lagerkvist, 2015).

Following Zaltman's and Coulter (1995) recommendation, this study executed the ten steps of the ZMET, finding that the steps instead of generating new views or adding more depth, merely supported each other, converging and confirming other authors' claims (Kokko and Lagerkvist, 2016; Zaltman, 1997; Chen, 2008). During the analysis, in line with Kokko and Lagerkvist (2016) suggestions, the main focus was on the storytelling and construct elicitation steps, using the other steps to either complement or validate the findings from the two main steps. Doing so, generated *"sufficiently rich and deep information about participants' experiences and feelings, even unconscious feelings"* (Kokko and Lagerkvist, 2016, p.219).

Another remarkable finding was the discovery of respondents' perceptions about traditional milking: they consistently associated it with something positive and described it as FAW-friendly. Such might catch the attention of the unfamiliar reader with the Mexican milking production system. Thus, I consider it pertinent to explore the context of the Mexican milking production system briefly, to understand better why the hand milking was mentioned as FAW-friendly and was commonly associated with better tasting milk by all of the respondents.

For starters, in the Mexican milking industry, the average yield per animal is 5000 kilograms of milk, being on a reasonable level compared to most benchmark countries. The milk yield per cow is between 700 kilograms to over 9000 kilograms (Wijnands, Armenta Gutiérrez, Poelarends, van der Valk, 2010).

According to Robledo Padilla (2018), the Mexican milking production system is divided into four categories. The first one is 1) *the specialised milking system*, which the only one with access to high technology like milking machines and cooling equipment. Secondly, 2) *the semi-specialised milking system*, which uses hand milking. In the third category is 3) *the family milking system*, where the milking takes place in small superficies and is made by hand, with no access to technology nor any equipment.

Finally, 4) *the dual-purpose cattle system*, which is exclusively executed in the tropical regions of the country: Chiapas, Veracruz, Jalisco, Guerrero, Tabasco, Nayarit, San Luis Potosí and Tamaulipas. Such a system produces both milk and meat. What is remarkable is that the milking is always by hand, using a well-adapted technique called "rejeguería" which means that farmers let the calf suckle between two to three minutes the cow's udder, so the milk's exit is stimulated. These farms usually have between 14 to 26 cows which are milked once daily (Ortiz Lans, 1982; Nahed-Toral, Sánchez-Muñoz, Mena, Ruiz-Rojas, Aguilar-Jiménez, Castel, de Asís Ruiz, Orantes-Zebadua, Manzur-Cruz and Cruz-López, 2013; Edstam, 2016).

Thus, when analysing such information, one realises that Veracruz is the state where the study took place and where the respondents are from. Veracruz is a state in the tropical regions of Mexico, where according to the literature, the milking by hand is the only milking technique commonly used, which suggests that the respondents are more likely to be familiar with only this technique. Therefore, the respondents related it with positive FAW due to the lack of information, knowledge or understanding about the negative consequences of milking a cow by hand and about the benefits of modern milking. This finding, confirms the conclusions of previous studies (Nocella et al. ,2010; Schulze et al., 2008; Vanhonacker and Verbek, 2014; Deimel et al. 2011; Franz et al., 2012; Kayser, 2012, and Heise and Theuvsen, 2017) that argued

that beliefs, personal characteristics, lifestyle and mass media coverage in the agro-livestock sector topic determine consumers' perceptions.

The lack of information might be the result of the common non-reading habit in Mexican society, where per week a Mexican dedicated only five and half hours to reading, being below the global average of reading almost seven hours per week (García, 2019; NOP Culture Score Index, 2005). However, the non-reading habit issue escalates because, in Mexico, the guaranteed access to a significant number of libraries, newspapers, and computers where one would be able to find information is low compared to the country with more access, which is Finland (Brown, 2017).

Hence, the respondents do not know about the modern milking techniques that are widely used in developed countries, and the respondents ignore the benefits that it can bring. This finding tells us what is required from the agri-food chain actors. Perhaps it is required that they educate more the consumers about what is a FAW practice in the dairy industry, even in the whole agri-food sector. Perhaps the involved actors in the sector can take this lack of information as an opportunity for marketing their items through an educational campaign of FAW practices.

When the respondents have to form meaning for FAW, what comes to their mind first are lower-level elements. Which in this study translates to respondents thinking that FAW is a specific set of attributes, that is integrated by the elements *free from chemicals*, *more natural*, *higher quality*, *cruelty-free*, *better taste*, *ethical* and *artisan-made*. Nevertheless, as theory tell us, these attributes are merely the means to accomplish a desired personal value, i.e. an end state (Gutman, 1982). Thus, it is assumed that the respondents perceive FAW as these specific and distinctive characteristics reflected in animal-based food. If they were told today *"this is a FAW-friendly animal-based food product"* they would perceive it as meeting these specific set of attributes, which would lead to *"something"* on a higher level.

It is of significance that only the attributes *free from chemicals*, *more natural*, *cruelty-free* and *better taste* are linked several times either direct or indirect to the identified major consequence of *no pain/painless life* for the farmed animals. Such is particularly interesting since it translates in the respondents' perception of FAW as a physiological or psychological result happening sooner or later (Gutman, 1982) not to them as a person, but, happening to the farmed animals. Thus, it can be assumed that if the consumers were told today *"this is a FAW-friendly animal-based food product"* they would expect that its consumption results in the insurability of a painless life of the farmed animals. This way of thinking goes in line with the mainstream literature's definition of FAW, and with the framework of the so-called Five Freedoms, that encompasses both physical and mental health protection (Farm Animal Welfare Committee, 2011).

Following the MEC's theory premises, the desired end-state happens after the consequence. It is a state of being in the individual. It is that *"something"* containing higher-level elements (Gutman, 1982). Thus, this study discovered that consistently FAW is evoked as an end-state by the respondents. It takes the form of *being compassionate*, which, in light of Schwartz's theory (2012) is identified as the value *Universalism*. Such value seeks to understand, appreciate, tolerate and protect the welfare of all people and all nature, means to be concerned for the society, the world, and nature. This implies that FAW is recognised as having value on itself, without having to result in an immediate benefit for them as the consumers (Hansson and Lagerkvist, 2015). From this, one can assume that respondents are merely compassionate beings. Hence, if they were to consume today FAW- friendly animal-based food, their desire and the purpose they might attach would be that: through this consumption, the welfare of the

farmed animals is wholly ensured. Thus, it is the farmed animals the ones that have the most significant benefit.

However, other two desired end-states were discovered. First, the end-state called *wellness* reveals that even if consumers are more consistently keen of perceiving FAW as the value where the animals' wellbeing is the ultimate priority, at some degree, they are also seeking for their health benefits. Schwartz (2012) recognises this as *Hedonism* since this kind of value is determined by the pleasure or sensuous gratification for oneself, which means that respondents look forward to the consumption of animal-based food that happens to ensure FAW because of the health benefits for them and, not for the animal's health per se.

Finally, the end-state called *achievement*, it is identified as the value *Benevolence*, since this value is defined by preserving and enhancing the welfare of the people that one is frequently in personal contact (Schwartz, 2012). It can be implied that respondents are keen on consuming the FAW-friendly animal-based food that helps them to achieve their health or their family's health. FAW animal-based food is perceived to have the *"healthier"* attribute.

Furthermore, MEC understands consumption as an action that it is executed merely to satisfy values. Therefore, the products an individual is going to consume, are purely chosen for the desired values that would be accomplished with the help of the product attributes (Hansson and Lagerkvist, 2015). Such translates into this research as discovering that when the interviewed group of Mexican consumers of animal-based food form meaning for FAW, this meaning is not straight-forward. Instead, the meaning they form is complex because it is integrated by a set of hierarchical relationships that are: attributes leading to consequences, to achieve a specific set of values, which can be reflected through the action of consumption.

As for the findings outlined here, it is essential to mention that the identification of attributes, consequences and values when consumers think about FAW, can have an impact on the different actors along the agri-food chain. Talking from a policy perspective, the panorama of FAW in Mexico today, still a bit morbid, since debeaking, de-toeing, tail-docking, tooth pulling, castration, dehorning of livestock without anaesthetic, confinement in gestation crates and battery cafes, among others, are legal practices.

Therefore, we can understand why it exists an urgency for changing such reality. It is urgent to stop practices that are not designed to ensure FAW (Miranda de la Lama et al., 2017; World Animal Protection, 2014). The current Mexican legislation on FAW exist, but, varies significantly across the different Mexican states, being the most prominent issue: the lack of consistency and consensus in animal welfare legislation and lack of standards and guiding principles that contemplate what FAW is (World Animal Protection, 2014).

Thus, the findings in this work might be of help on providing insight on the consumers' mental map, which can be the source for better understanding of FAW's meaning and the MEC elements attached to it. Implying that such information, if it is considered when designing standards, guidelines, and laws, it can help to bring some consensus of what FAW should and should not be in practice.

From a marketing perspective, the findings outlined in this work, might be of help to other agri-food chain actors because it is proven now that: 1) exists a current interest and concern of the respondents for FAW animal-based food and that Mexican consumers are fully aware that farmed animals are sentient beings; 2) what are the desirable characteristics in animal-based products that are FAW-friendly; 3) what should be the adequate farming conditions of the

animal from life until the slaughter according to respondents and 4) what is the value that farming within a FAW-guaranteed framework can bring and the value that consumers attach to FAW.

FAW must be promoted as an extrinsic quality attribute of animal-based food. Also, the agri-food chain actors must create market-oriented strategies where FAW is considered (Miranda de la Lama et al., 2017). Perhaps through a labelling system or perhaps through an educational campaign of the businesses' FAW practices. Businesses can become the ambassadors and promoters of FAW. Thus, the findings of this study might serve as guidelines when designing such market-oriented strategies. The agri-food chain actors must start to embrace FAW since there is an ethical value that consumers attach to FAW-friendly animal-based food. FAW represents a great business opportunity and a chance for economic growth (Miranda de la Lama et al., 2017). Suppose the agri-food chain actors are interested in adopting FAW practices merely for the economic benefit. In that case, they can take this work's findings as a source of what a group of Mexican consumers' think and expect of FAW in animal-based food.

It will be of interest if further studies adopt the same approach used in this study but including both male and female respondents, in another Mexican state. The goal would be to grasp between the differences or similarities of consumers' mental maps among diverse geographical, demographical and even cultural backgrounds: "do their views of FAW change depending on where they are from?". An answer to this question would be of great value in the limited FAW literature in Mexico since such results could be compared with this study's results.

Also, a comprehensive study with a larger sample that explores how Mexican consumers would perceive a FAW label in animal-based food would greatly benefit the inexistent empirical knowledge towards the economic benefits of applying a FAW labelling system in Mexico. A larger sample is an excellent strategy to tackle the problem of generalisation. The more cases are analysed, the more general the conclusions can be (Mayring, 2007).

6 Conclusions

This study aimed to provide a deeper understanding of Mexican consumers' perceptions of animal-based food when forming a meaning for FAW. Two questions were formulated to achieve the aim. The question *"What meaning do animal-based food consumers give to the term farm animal welfare (FAW)?"* is answered as follows: when the interviewed Mexican consumers of animal-based food form meaning for FAW, the meaning is complex. A set of hierarchical relationships integrates FAW meaning. These hierarchical relationships are *attributes* leading to *consequences*, to achieve a specific set of *values*, which can be reflected through the action of consumption.

"What attributes, consequences and values are used by animal-based food consumers when forming a meaning for farm animal welfare (FAW)?", is answered as follows: the respondents consistently reflected FAW as a set of specific and distinctive characteristics in animal-based food products. Such characteristics are the attributes *free from chemicals, more natural, higher quality, cruelty-free, better taste, ethical* and *artisan-made*. When forming a meaning of FAW, the respondents happen to perceive FAW as a physiological or psychological result happening to the farm animals, taking the form of a set of consequences that reflect the respondents' FAW thoughts, being *no pain/painless life, freedom of movement, free from stress, non-alteration of the animals' development, access indoor/outdoor, access to natural food and water, no overexploitation, dignified life, access to medical care, non-forced reproduction, access to socialising with their own specie, access to rest and sleep, dignified slaughter* and *recognition of farmed animals as sentient beings* the recurrent constructs. Additionally, when forming a meaning for FAW, the respondents reach out to three end-states: *being compassionate, wellness* and *achievement*.

In summary, this study's approach has provided a deeper understanding of what FAW means for the group of Mexican consumers interviewed, represented graphically in the first and only Mexican respondents' mental map. This map is a rich insight into the respondents' thinking process. This study's results might serve as a source of useful information or guideline, when the actors in the agro-livestock sector in Mexico, finally decide to listen to the consumers' concerns, ensuring FAW since the farmed animal is born until the moment of its consumption.

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Appendix 1: Implication matrix, own elaboration

TOTAL CELLS CELL 420 100%
CUT OFF 3 CELL 67 15,95
CUT OFF 2 CELL 178 42,38

LINKS
CUT OFF 3 312 37,011
CUT OFF 2 563 66,785

CONCENTRATION INDEX
CUT OFF 3 0,4
CUT OFF 2 0,6 Highest

LINKS 234 609 843
DIRECT INDIRE TOTAL
58 85 32

Appendix 2: Image selection by respondent