

Internalisation of farm animal welfare in consumers' purchasing decisions: A study of pork fillet at point of purchase using the means-end chain and laddering approach

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Abstract

The purpose of this study was to investigate how farm animal welfare (FAW) is internalised in consumers' purchasing decisions at the point of purchase. The study is based on means-end chain theory and the laddering interview technique to elicit respondents' mental representation of attributes, consequences and values of an animal food product. Respondents were approached and interviewed at the point of purchase in two supermarkets in Uppsala, Sweden. A summary representation of respondents' mental representation of attributes, consequences and values of an animal food product (pork fillet) was created. The findings indicate that FAW is the most salient means-end-chain element. FAW enters respondents' mental representation of pork fillet at the point of purchase as a consequence of other elements. FAW is considered to lead to values of hedonism and universalism type. This study contributes to the literature by detailing how animal welfare can be embedded in consumers' mental representation of cause and effect of animal food product attributes at the point of purchase. The findings are useful practically for policy-makers and for agri-business and other actors in the food value chain who would like to promote enhanced FAW. The findings also provide insight into how FAW can be promoted through market-based solutions.

Keywords: animal welfare, consumers, laddering, means-end chain, pork fillet, Sweden

Introduction

Poor farm animal welfare (FAW) is a central ethical concern in modern food production. This is due to the increasing societal concern regarding the living conditions of production animals, highlighted in several studies (McCarthy *et al* 2004; Ingenbleek & Immink 2011; Thorslund *et al* 2017). Furthermore, in surveys carried out by the European Commission (2015), a large majority (94%) of respondents replied that it was important for them that the welfare of farm animals was protected. In the USA, Lusk *et al* (2007) reported that 62% of US household representatives thought that farm animal welfare should also be considered in situations where humans suffer, and that 64% thought that farmers and other food value chain actors prioritise profit considerations over the treatment of animals. Poor FAW not only affects the animals that are not treated well, but its consequences can also extend to human welfare, for instance with individuals feeling bad from knowing that animals may not be treated well but also from resulting adverse effects on animal health and use of medication which can be linked to risks of antibiotic resistance which have direct risks for human health.

Through various public policy- and market-driven incentives, various stakeholders have tried to mitigate poor FAW. From a European perspective, FAW is regulated through a set of directives that stipulate the minimum standards among the different types of production animals. Individual member states can set higher requirements for their domestic production, with stricter legislation often found in northern Europe (Veissier *et al* 2008). Through market-driven initiatives, FAW standards can be even higher than those implied by legislation (Thorslund *et al* 2017). These typically build on the fact that FAW is internalised in the market through the marketable product attributes of food products and include various private certification schemes. Market-driven standards are typically not legally binding for farmers but compliance facilitates market access (Lundmark *et al* 2016). In Sweden, the country of focus in this study, animal welfare regulation consists of an animal welfare act, which stipulates minimum requirements and a number of industry standards which are private initiatives by food industries and farmer organisations (Lundmark *et al* 2016). The Swedish Animal Welfare Act (SFS 2018) typically goes beyond requirements posed by EU directives.

In the discussion of how to regulate FAW, it is important to acknowledge the dual roles humans typically take in relation to FAW. It is established that individuals do not always act on their views and attitudes in shopping situations, thus resulting in dual roles as citizens and as consumers (Schröder & McEachern 2004; Grunert 2006; Krystallis *et al* 2009). As a citizen, individuals may express concern over FAW, but in shopping situations, they may not always act on these concerns. The concern expressed as citizens lays the groundwork for the understanding of the size of the negative effect of poor FAW as considered by the public. However, for marketing initiatives to function to establish more animal welfare-friendly food production, people, in their role as consumers, must act on their FAW attitudes and views in their purchasing decisions. The way in which consumers respond to marketable product attributes is likely heavily dependent on the mental representations upon which they base their purchasing decisions related to specific food products. Moreover, in psychological literature, it is established that personal values are standards which guide the behaviours of people (Rohan 2000; Bardi & Schwartz 2003). Personal values mirror what people consider important in their lives (Bardi & Schwartz 2003). They represent desirable and trans-situational goals for the individual and thereby serve as guiding principles in people's lives (Schwartz & Bardi 2001). Consumers striving to live by certain personal values can thus be expected to motivate their purchasing decisions. Focusing specifically on the role of FAW in understanding consumers' mental representation (including the attributes attached to the product, the consequences of these attributes and the personal values these attributes function to satisfy) of specific animal food products, would be one important step in understanding the potential for market-driven initiatives to mitigate poor FAW.

Accordingly, in this study, we investigate how FAW is internalised in consumers' purchasing decisions related to specific animal food products. In particular, the aim is to identify the place FAW takes in the representation of consumers' understanding of product attributes, the consequences of these attributes, and why these attributes are important to the consumers (ie the personal values that they function to satisfy). In doing so, we can detail the role FAW takes in respondents' purchasing decisions and why. The empirical application is based on semi-structured interviews with a set of 57 consumers of pork fillets at the point of purchase, in two supermarkets in Uppsala in Sweden in Spring 2018. The study is based on means-end chain (MEC) theory (Gutman 1982; Reynolds & Gutman 1988) and the laddering interview technique (Reynolds & Gutman 1988; Olson 1989). The MEC and laddering approach have been used extensively by previous literature to map values directing consumers' decisions (Russell *et al* 2004; Lind 2007; Barrera & Sanchez 2009; Bitzios *et al* 2011), although it has never previously been used to explicitly assess and discuss how consumers internalise FAW into their purchasing decisions. In relation to previous MEC studies on consumer behaviour, for instance the one by Lind (2007) which compared motives for

purchasing decisions across four types of pork, this study contributes by specifically focusing on how MEC can be used to investigate how consumers internalise animal welfare in their purchasing decisions.

Previous literature has shown a significant interest in consumers' FAW concerns and if and how these concerns affect their purchasing behaviours. For instance, a number of studies have investigated consumers' willingness to pay price premiums for products produced under higher animal welfare conditions (Carlsson *et al* 2005; Clark *et al* 2017) and their intentions to buy such products (de Graaf *et al* 2016). Toma *et al* (2012) investigated the impact of determinants on consumers' stated willingness to change where they shop to buy more animal-friendly food products. In such studies, consumers provided information based on simulated shopping experiences or by stating their intentions. Thorslund *et al* (2017) used focus group interviews to investigate consumers' perceptions of meat and meat consumption related to animal welfare. Denver *et al* (2017) investigated how the pork market received FAW labels in Denmark.

The novelty of this study lies in its detailing of how FAW is represented in consumers' mental representation of cause and effect of elements in an animal food product, by investigating the role FAW takes in terms of attribute, consequence of an attribute or as a value in purchasing decisions. This type of analysis of FAW is useful for understanding how marketing of animal welfare-friendlier food products can be improved. Furthermore, previous literature has typically not approached consumers at the point of purchase, which increases the risk that responses are based on humans' views in their role as citizens, which may not necessarily be activated in the store. In this study, respondents were approached and interviewed directly after they had selected a specific animal food product in the supermarket. In this way, we expect to elicit the views they act upon in the actual purchasing situation.

Ethical statement

Prior to interviews starting, respondents were informed of their anonymity and the confidentiality of the interview, that they could choose to discontinue the interview at any time or refuse to answer any question, and that there were no right or wrong answers. Our study did not meet the criterion requiring the seeking of ethical approval, according to the relevant regulations governing research in Sweden.

Conceptual framework

Initiatives to market animal welfare-friendlier products depart from the premise that consumers perceive an added value in higher production standards, which motivates them to pay a premium above the price of similar goods produced under less strict FAW standards. To the consumer, FAW is an example of a credence good (Darby & Karni 1973), as it cannot be evaluated through use of the product. Instead, the value of credence goods must be inferred from labeling systems or other types of signaling (Fernqvist & Ekelund 2014).

Means-end chain theory posits that purchasing decisions are based, not on the products themselves, but on the values that the products function to satisfy. In particular, the theory posits that there is a hierarchical relationship from the perceived attributes of a product to its consequences, and to the desired end-states (values) the consequences contribute to fulfilling (Gutman 1982; Reynolds & Gutman 1988). Products are thus evaluated against how well their attributes function to lead to the desired end-states (Grunert 2005). Thus, the value component in the MEC approach is central. Values are assumed to direct consumers' purchasing decisions, based on the perceived attributes of a product (ie what the product represents to the consumer) and on the identification of the consequences of these attributes. MEC-theory is thus used in this study to facilitate the understanding of consumers' mental representation of animal food products, in particular to understand the role of FAW in the cognitive structure that guides consumers' purchasing decisions at the point of purchase, including why FAW may be important to consumers.

The desirable end-states of the hierarchical MEC structure of attribute, consequences and values can be related to personal value theory, and thus discussed in terms of personal values. Schwartz (1994) described ten universal personal values: power, achievement, hedonism, stimulation, self-direction, universalism, benevolence, tradition, conformity, and security, and the existence of these has been established in large cross-cultural datasets (Schwartz & Boehnke 2004). In this study, the set of ten personal values is used to discuss the desirable end-states, based on the perception of attributes, consumers use to describe the animal food product under study.

Materials and methods

Data for this study were collected from interviews with a set of 57 Swedish consumers who were approached and interviewed after they had selected a pork fillet. We chose pork fillet as the case product in this study because it is a popular and common cut of meat in Sweden, and which exists in different types of categories (branded/not branded, organic/not organic, local, Swedish, imported) and is also associated with a wide price span depending on type of category. Interviews were conducted using the laddering interview technique (Reynolds & Gutman 1988; Olson 1989). The laddering approach refers to one-on-one interviews with the objective of understanding how consumers translate the product's attributes to meaningful associations, following MEC theory (Reynolds & Gutman 1988). The format of the interview was a series of direct probes arranged into the format: 'Why is that important to you?' Unlike the traditional semi-structured interviewing techniques, laddering is fairly strict. The interviewer has a defined agenda and structure to follow, and the questioning is similar for each of the interviews. The answer usually leads to distinctions, including the basic functions of the product and consequences, which function as the basis of higher level distinctions (Gutman 1982). The procedure continues to the point when the respondent can no longer provide articulate further consequences. This is considered the end-state of a ladder.

When applying the laddering interviewing method, two types of techniques can be used, hard- or soft-laddering (Costa *et al* 2004). A hard-laddering technique is when the respondent is asked to generate and verify separate ladders containing associations between elements in increasing levels of abstraction. When applying a soft-laddering technique, the ladders are constructed later, and a less-restricted flow is encouraged during interviews. Therefore, the difference is that the respondent is allowed to provide different reasons why a specific attribute is important for them or give the same reason for different attributes, which is not allowed when using a hard-laddering technique. In this study, a soft-laddering interview approach was applied as it was expected to generate more means-end chains of increased abstraction level than hard-laddering and makes it more suitable when trying to distinguish the complex motivations of consumer consumption decision-making. A soft-laddering structure is also preferable when studying smaller samples.

In particular, the laddering interview technique was used to derive consumers' means-end chains with respect to the pork fillet they chose, and if, how and why FAW is a part of their mental representation of the product. Laddering interviews enable an understanding of why and to what extent certain attributes are salient in consumers' purchasing decisions. In this way it was possible to exemplify how the role of FAW in consumers' purchasing decisions related to animal food products can be distinguished and why FAW may be important at the point of purchase. In particular, together with MEC theory, the approach allows us to go beyond the products' functional properties and emphasise how and why the product is perceived as useful for the consumer (Gutman 1982). As such, an in-depth illustration of how FAW is internalised in consumers' purchasing decisions could be achieved. The approach allows for the collection of complex and rich data from which key concepts and categories may be identified from coding the data, and from this, the role of FAW in consumers' mental representation can be derived. For the purposes of this study, this feature is particularly appealing as it allows the respondents to elaborate freely on the attributes they perceive in the selected pork fillet and why these attributes are important to them. In particular, the approach taken means that the respondents will only mention FAW if it is part of their means-end chains with respect to the selected food product. This means that it was possible to reduce the risk of the consumers claiming FAW as important in their purchasing decision just because they think this is expected from them. Still, it should be acknowledged that results may be affected by social desirability bias in FAW (Lusk & Norwood 2010) and/or by actions taken by respondents to reduce possible cognitive dissonance (Festinger 1962).

The empirical data were collected in two different supermarkets in Uppsala; ICA Maxi and Stora Coop. The supermarkets are relatively comparable in their supply of pork fillet (eg organic/not organic, frozen/not frozen and country of origin) and location (how to reach them). Furthermore, both are two of Uppsala's larger supermarkets with a customer base that represents many different sectors of

Table 1 Descriptive statistics on the sample (n = 57).

Variable	Share of responses (%)
Gender (female: 1; male: 0)	54.4
Age range	
21–30 years	14.0
31–40 years	8.8
41–50 years	40.35
51–60 years	19.30
61–70 years	12.28
71+ years	5.26
Responsibility for food purchase (alone)	64.9
Responsibility for food purchase (shared)	21.1
Household size	
1–2 people	45.6
3–4 people	43.9
5+ people	10.5
Country of origin of food product (Swedish [domestic]: 1; non-Swedish: 0)	43.9
Experience of farm animals (yes: 1; no: 0)	12.3

society. The data were collected on eight separate occasions, on Thursday and Friday afternoons for four weeks in April 2018. All interviews were conducted by MH and MP and each occasion lasted approximately 2 h. The respondents were chosen by convenience sampling, meaning that the subjects participating were the most accessible for the study (Marshall 1996). All consumers who selected a pork fillet and put it in their shopping cart were approached and asked to take part in the study. Out of 67 approached customers, ten declined. This left us with a final sample of respondents who were willing to participate, with whom laddering interviews were conducted.

The chosen pork fillet was used as a starting point for the laddering interviews, and every interview started with the question ‘Why did you choose that pork fillet?’ Interviews lasted, on average, 5 min. After completion of the interview, some background questions were asked about the respondent (age, size of household, if they were in charge of food purchases or not and if they had experience of farm animals).

Data were analysed according to the recommendations of Reynolds and Gutman (1988), meaning that the raw interview material was scrutinised for attributes, consequences and desired end-states. In the second step, the material was summarised into master codes where similar responses were merged under the same heading. This thus means that concepts from the raw data that were taken to essentially represent synonyms, were summarised under a common master code. The master codes were used to construct an implication matrix and to summarise the means-end chains in a hierarchical value map (HVM). This

was done ‘by hand’, meaning that direct and indirect links were first manually collected from the master codes into an implication matrix and that the HVM was developed by sketching the links as evident from the implication matrix. The HVM represents the way in which the interviewed respondents think about the food product they had chosen (Reynolds & Gutman 1988). This represents the summarised mental representation of the respondents with respect to the pork fillet they had chosen. Based on this we can illustrate if, how and why FAW may be internalised in respondents’ purchasing decisions.

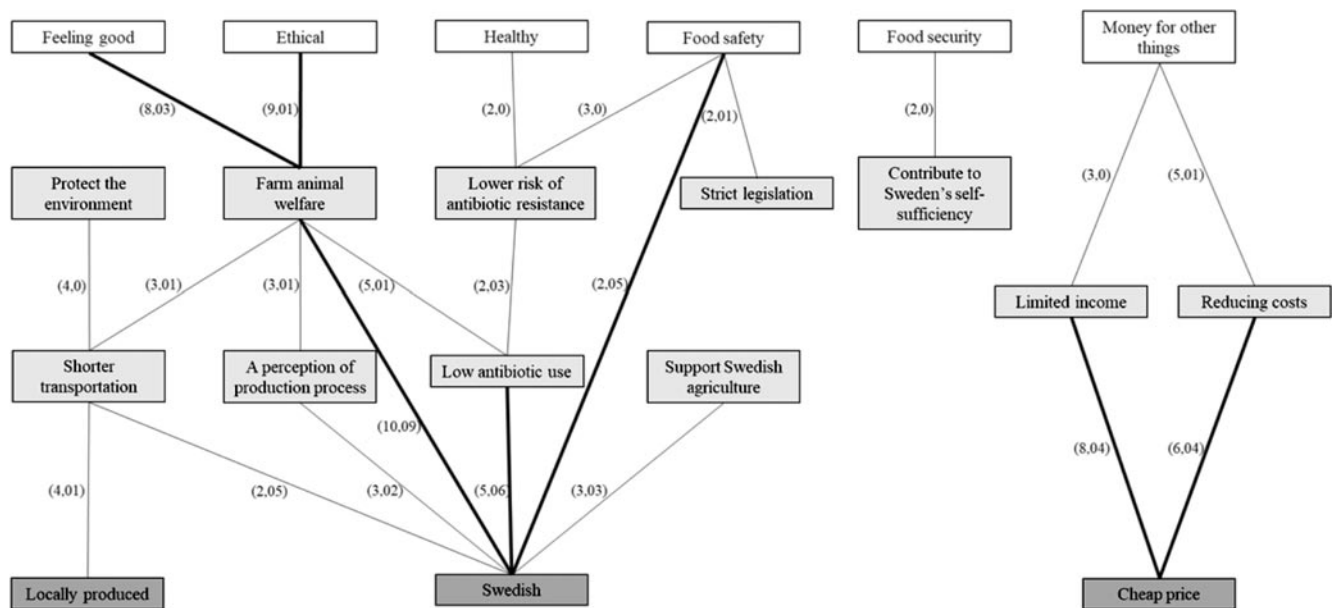
A critical aspect in summarising laddering data into an HVM is the choice of cut-off value for how many times a link must have been mentioned to appear in the HVM. The choice of this is driven by a compromise between deriving an HVM which is clear and easy to interpret, and deriving an HVM which includes as much data as possible (Reynolds & Gutman 1988; Leppard *et al* 2004). Reynolds and Gutman (1988) have recommended a cut-off value of 3–5 in studies with a sample size of 50–60 respondents. Gengler *et al* (1995) recommended that the cut-off value represent a percentage of the sample size. However, it should also be emphasised that the process of summarising raw data into master codes indirectly affects the possibilities to retain the data in the HVM (Grunert *et al* 1995). In particular, if only a few master codes are used (raw data are sorted into a larger set of master codes), more data can be retained at higher cut-off values as the same master code is taken to represent a larger set of raw data from the laddering interviews. On the other hand, if many master codes are used, less data are retained at higher cut-off values as a larger diversity in codes are used. In this study, a cut-off value of 2 was used, after evaluating options with other cut-off values. At this cut-off value we were able to arrive at an HVM that was clear and possible to interpret, while we could keep as much data as possible. Of the original links, 21.7% were kept in the HVM. While this is considerably lower than in other studies (Hansson & Lagerkvist 2015), it is a direct effect of the choice to keep the master codes at a low level of aggregation to allow for nuances in respondents’ views to appear.

Results

Descriptive statistics of the sample are shown in Table 1.

The 57 laddering interviews resulted in 100 ladders, of which 53 were complete from attribute, to consequence to value. On average, each respondent produced 1.75 ladders, each containing an average of four elements. The laddering interviews resulted in a total of 44 MEC elements (attributes, consequences and values), and 288 direct and 381 indirect links. The most common MEC element was ‘Swedish.’ FAW was an MEC element in a total of 27 ladders, by a total of 37% of the respondents. Compared with respondents choosing imported pork fillets, respondents choosing domestic pork fillets produced more often more than one ladder, and ladders with more elements. Similar results were found by Lind (2007). Also, respondents choosing domestic pork fillets appeared more willing to share their reasoning behind their choices.

Figure 1



Hierarchical value map (HVM). Direct and indirect links between MEC elements are indicated in parenthesis. The most salient links are indicated in bold. Numbers refer to the number of direct and indirect links between MEC elements.

Figure 1 presents the HVM that was constructed to summarise the laddering interviews. The HVM suggests that the respondents' purchasing decisions with respect to pork fillets were directed by three attributes: 'Swedish', 'Locally produced' (ie only available in the region of the study) and 'Cheap price.' These represent the most essential properties of a pork fillet for the respondents. The attribute 'Swedish' (representing the country where the animal was raised and slaughtered) was by far the attribute with the largest number of links to other MEC elements, with 38 direct or indirect links to other MEC elements. 'Swedish' is therefore the most salient attribute for the respondents when viewed as a group. Furthermore, the attribute 'Cheap price' has 22 links to other MEC elements and is thus the second most important attribute. The attribute 'Locally produced' was mentioned five times connected to other MEC elements.

The HVM (Figure 1) further suggests eleven consequences. These are: 'Shorter transportation (for the animals)', 'Protect the environment', 'A perception of production process', 'Farm animal welfare', 'Low antibiotic use', 'Lower risk of antibiotic resistance', 'Support Swedish agriculture', 'Strict legislation', 'Contribute to Sweden's self-sufficiency', 'Limited income', and 'Reducing costs.' Of those, nine are linked, directly or indirectly, to a value. The consequence with most connections to other MEC elements is 'Farm animal welfare' with 54 links, followed by 'Low antibiotic use' with 29 links. 'Shorter transportation' is linked 20 times to other MEC elements. Other consequences have fewer links: 'Reducing costs': 16 links; 'Limited income': 15 links; 'Lower risk of antibiotic resistance':

ten links; 'A perception of production process': nine links; 'Support Swedish agriculture': six links; 'Strict legislation': three links and 'Contribute to Sweden's self-sufficiency': two links.

The HVM (Figure 1) suggests six desired end-states. These are 'Feeling good', 'Ethics', 'Health', 'Food safety', 'Food security', and 'Money for other things.' Out of these six elements, 'Food safety' is the most salient desired end-state that influences a consumer's choice with 13 links to other MEC elements. 'Feeling good' has a total of eleven links, followed by 'Ethics': ten links; 'Money for other things': nine links; 'Healthy': two links and 'Food security': two links.

The most salient links between MEC elements are indicated in bold in the HVM (Figure 1). These run from i) 'Swedish' to 'Farm animal welfare' to 'Feeling good', ii) 'Swedish' to 'Farm animal welfare' to 'Ethical', iii) 'Swedish' to 'Low antibiotic use', iv) 'Swedish' to 'Food safety', v) 'Cheap price' to 'Limited income' and vi) 'Cheap price' to 'Reducing costs.'

In accordance with the aim of this study, the HVM (Figure 1) was used to illustrate the role FAW takes in respondents' purchasing decisions, by highlighting the place FAW takes in respondents' mental representation of attributes, consequences and desired end-states related to their choice of pork fillet. Indeed, the HVM indicates that the MEC element 'Farm animal welfare' is the most salient element in the HVM, connected to other elements through 54 of the total 145 links in the HVM (Figure 1). Furthermore, the HVM indicates that FAW enters respondents' mental representation as a consequence of other

MEC elements respondents used to describe their purchasing decision. Thus, FAW is not considered a product attribute in itself but is considered a consequence of other attributes or consequences. This implies that FAW enters the respondents' mental representation as a relatively abstract element, which is derived from the perceived presence of other attributes and consequences.

The strongest link including 'Farm animal welfare' begins at the attribute 'Swedish' (see Figure 1). The link between these two MEC elements is mentioned 19 times in total and is the strongest link in the whole HVM. 'Farm animal welfare' is further linked to two desired end-states, 'Feeling good' and 'Ethics', which are also the most salient values in the HVM. The HVM further suggests that respondents view 'Farm animal welfare' as being a consequence of three preceding consequences: 'Shorter transportation', 'A perception of production process' and 'Low antibiotic use.' These consequences, in turn, are considered to originate from the product attribute 'Swedish' and 'Locally produced' (for 'Shorter transportation'). These findings suggest that in the respondents' mental representation of attributes, consequences and values, FAW is viewed as a consequence of two product attributes which describe the place of production, and which are assumed to be associated with practices that enhance FAW.

Discussion

Poor FAW implies significant ethical concerns for modern food production and an increasing societal awareness regarding the living conditions has been highlighted by several studies (McCarthy *et al* 2004; Lusk *et al* 2007; Ingenbleek & Immink 2011; European Commission 2015; Thorslund *et al* 2017). In this study, consumers' internalisation of FAW in their purchasing decisions related to a specific animal food product (pork fillets) was assessed based on data collected from 57 consumers at the point of purchase. This provided information which is useful for understanding how market-based initiatives can be used to mitigate poor FAW. Most respondents (86%) were responsible for food purchases in their household alone or shared with someone else. All respondents (including those not responsible for food purchase) were kept in the analysis to better mirror reality in purchasing situations where consumers who are normally not responsible for food purchasing also occasionally do the shopping. Data were collected using laddering interviews. Such interviews have been used extensively to derive consumers' means-end chains in relation to various products (Russell *et al* 2004; Barrena & Sanchez 2009; Radder & Grunert 2009). They have also been used for other purposes, such as for characterising farmers' decision-making (Lagerkvist *et al* 2012; Hansson & Lagerkvist 2015). However, they have not previously been used to illustrate how the role of FAW in consumers' purchasing decisions can be derived. In relation to much of the literature focusing on consumers' perceptions of FAW, where studies have mainly been conducted through methods where the consumers choose between or rank pre-determined product attributes or fixed sets of

responses (Liljenstolpe 2008; Nocella *et al* 2010; Denver *et al* 2017), the approach taken here allows the respondent to express FAW only if it is important to them and if so, to elaborate on why it is important to them. Accordingly, this study moved beyond current literature related to how FAW concerns affect consumers' purchasing behaviours, by detailing how FAW is embedded in the mental representation of consumers' understandings of cause and effect in animal food products. In particular, it was possible to detail the understanding of the role FAW takes as an attribute, consequence or value, in purchasing decisions.

The findings are useful for agri-business and other actors in the food value chain in their efforts to promote enhanced FAW. Findings could also be useful to policy-makers by illustrating how FAW is currently internalised in respondents' purchasing decisions. Furthermore, the approach outlined in this study, where the role of FAW at point of purchase can be investigated may also be relatively easily implemented to map how consumers take FAW concerns into their shopping decisions in other situations. Policy-makers can use the approach of this study in empirical analyses aimed at understanding the role of FAW at the point of purchase among other groups of consumers and for other types of animal food products.

Our results indicate that FAW plays a prominent role in respondents' mental representation of the animal food products they purchase. With 54 links to other MEC elements, FAW is the most important MEC element in terms of connections with other elements. As a consequence, FAW as an MEC element is a part of the two most important ladders in the HVM. The MEC element FAW is related to the end-states 'Feeling good' and 'Ethical.' Relating these end-states to personal value theory (Schwartz 1994), suggests that respondents' FAW considerations are related to the personal values 'hedonism' (feeling good) and 'universalism' (ethical). This can be compared with other end-states derived from the HVM, which can be related to the personal values of 'security' (healthy, food safety and food security) and 'power' (money for other things). FAW as an MEC element in the HVM is thus related to a set of distinct personal values to which the other MEC elements are not related. It is also interesting to note that respondents distinguish between MEC elements 'Low antibiotic use' and 'Lower risk of antibiotic resistance' on the one hand and 'Farm animal welfare' on the other, leading to different sets of end-states, although they originate from the same attribute ('Swedish'). Findings point to respondents perceiving FAW as separate from the health implications. From a practical perspective, findings imply that if FAW is to be promoted, measures and arguments to do so should appeal to the values of 'hedonism' and 'universalism', and that FAW cannot be expected to be covered by measures or arguments which relate to other values such as 'security' or 'power.' It is also interesting to note that the product attribute 'Cheap price' is not at all linked to 'Farm animal welfare' in the HVM. This points to a trade-off between FAW and price made by respondents who consider price a key product attribute and which needs careful consideration

in discussions about how poor FAW can be mitigated via market-based initiatives.

The approach taken here can also be used to discuss the extent to which more animal welfare-friendly food products can be marketed. Grunert (2005) highlighted that research related to understanding consumers' perceptions of product quality attributes takes a mediating role between supply and demand, as consumers' perception of the supply of goods lead to their demand for these goods. Our findings illustrate that FAW takes a prominent role in respondents' mental representation of the product under study and that FAW is viewed as the function of the MEC elements 'Shorter transportation', 'A perception of production processes' and 'Low antibiotic use.' These MEC elements, in turn, were viewed as originating from the product attribute 'Swedish.' Thus, the findings illustrate that respondents in this case use country of origin as a heuristic for FAW via the three MEC elements that they use to represent FAW. Details of FAW are thus inferred from the product attribute 'Swedish' and respondents' perception of Swedish products can be expected to lead to their demand for products with this label. Given the current product labelling system in use in the two stores used for data collection, the product attribute 'Swedish' plays a significant role in helping consumers to direct their purchasing behaviours according to their understanding of how to contribute to improving FAW.

At the same time, the HVM illustrates that although FAW takes a prominent role in the respondents' mental models, it is still undetailed, containing rather vague ideas such as 'transportation', 'production processes' and 'use of antibiotics.' In future research, it would be useful to illustrate how FAW enters consumers' mental representation of food products in markets where more explicit FAW labelling systems exist.

Looking into the HVM it is also interesting to note that food quality attributes, such as taste and appearance, did not emerge as an MEC element. Previous literature on food, for instance work by Lind (2007) and Bitzios *et al* (2011), has reported such quality attributes as important in consumers' purchasing decisions. Our findings point to that at the stage of choosing pork fillet, respondents in this study consider other product attributes as more salient. A reason for this may be that respondents consider their choice set as limited to a set of products (competing pork fillets) that are rather similar in terms of quality attributes, such as taste and appearance. This would mean that they had narrowed their choice set to a type of meat cut they had already planned to buy before the point of purchase and at said point their choice was merely based on which category of the same type of meat cut they would choose.

It is also interesting to note that our HVM provides an understanding about consumers' reasoning that differs notably from findings reported in the study by Lind (2007), which was based on pork (but not specified to which cut) in Sweden. One reason is that a significant amount of time has passed since data were collected for the study by Lind (2007) and that FAW has become more visible in the public debate in Sweden. Another reason is, as highlighted above, that the

study by Lind (2007) was not based on a particular meat cut as the current one, which could have narrowed our respondents' choice set to which type of a particular meat cut they preferred, thus leading to a different set of MEC elements.

Our results are based on interviews with 57 consumers at the point of purchase. As such, our findings can be taken to represent the mental representation of attributes, consequences and values of consumers from similar segments and for similar food products, in particular consumers in more urban areas in Sweden. However, they should only be cautiously generalised to other groups of consumers or used to represent Swedish consumers as a whole. In particular, since our place of data collection (Uppsala) is a university town with two universities, its population can be assumed to be better educated than the average Swedish consumer. This may lead to preferences for animal welfare which differ from those of the population in other parts of Sweden, something which could have affected the results. Additionally, because poor FAW (especially in relation to pigs) has been much discussed in the Swedish media and because Sweden is perceived as having relatively strict animal welfare legislation, Swedish respondents may have stronger preferences for FAW. At the same time, results from the most recent Eurobarometer (European Commission 2015) on attitudes towards animal welfare in the EU member states, point to large majorities of respondents (78–86%) in several member states besides Sweden (such as Cyprus, Ireland, Malta, UK [a member state at the time of data collection] and Finland) also thinking it is 'very important' to protect FAW. Thus, while findings presented here should of course only cautiously be generalised outside of Sweden, there are reasons to think that similar findings could be achieved in other European countries, especially in those where FAW is considered 'very important' by large majorities. Having said that, the approach taken in this study is useful for the purpose of illustrating how FAW can be represented by consumers at the point of purchase of an animal food product. As such, the approach is useful in other settings with a similar interest.

It should also be mentioned that our findings may be sensitive to the type of meat cut considered. In particular, pork fillet may be considered by certain consumers to be a more luxurious food product for which consumers may have different preferences compared with meat cuts for everyday or weekday consumption, such as minced meat or pork chops. Future research could investigate the role of meat cut by comparing results across two or more types of meat cuts.

Several other important research questions related to consumers' acceptance of animal welfare regulation remain and future research should focus on these. Such research questions include respondents' acceptance of FAW standards beyond those required by national legislation, perceptions of welfare standards beyond national legislation, how consumers would react to possible changes in national welfare legislation and whether respondents are prepared to pay price premiums for foreign animal food products which are produced under specific welfare schemes.

Animal welfare implications

The prominent role FAW takes in respondents' mental representation of attributes, consequences and values, confirms that they perceive FAW to be a quality attribute in their selected animal food product and that they search for products which are considered to contain this quality attribute. From a practical perspective, this implies that among this type of consumer, FAW quality attributes can, at least to a certain extent, be expected to be internalised in their purchasing decision and that poor FAW can be mitigated by highlighting FAW as a quality trait of FAW-enhanced production processes. However, given that FAW is only inferred by respondents from the product attribute 'Swedish' it could be useful to further highlight product attributes explicitly related to FAW to further promote FAW-enhanced products. By doing so, it is possible that market-based solutions can further contribute to mitigate poor FAW.

Conclusion

In conclusion, our results indicate that FAW takes a prominent role in respondents' mental representation of attributes, consequences and values related to pork fillet. By approaching and interviewing consumers at point of purchase, we were able to highlight the role of FAW during the moment when they made their purchasing decisions. In particular, FAW took the role of a consequence of the product attribute 'Swedish' and the consequences 'Shorter transportation', 'A perception of the production processes' and 'Low antibiotic use.' This is a useful way of detailing how FAW enters respondents' selection of food products.

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