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An Exploratory Study to Assess European Consumers' Opinion about a Beef Quality Guarantee System

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Abstract

Consumer demand in relation to food is increasingly shifting towards products that are safe, nutritious, and of good eating quality. Beef consumers are demanding for experience quality that matches their quality expectations formed prior to consumption, particularly with respect to beef tenderness. The development of a beef quality guarantee system, backed up by objective knowledge obtained through muscle profiling research, can allow the beef industry to meet these consumer demands. A qualitative consumer study has been carried out to assess European consumers' opinions about beef quality and beef related technologies. This paper reports on consumer opinions and perceptions about muscle profiling and a beef quality guarantee system. Findings indicate that both concepts are well accepted by European beef consumers, although not unconditional. The insights obtained from this study indicate good opportunities for the development of a beef quality guarantee system in Europe. As an increase in consumers' satisfaction with beef products could lead to higher consumption rates and industry profitability, the introduction of a quality guarantee system can contribute to further market development and improved competitiveness of the European beef industry.

1. Introduction

Consumer demand in relation to food is increasingly shifting towards products that are safe, nutritious, and of good eating quality. In contrast to other food sectors, the beef industry has been relatively slow in reacting to these trends. Guaranteeing beef quality is also not consistent considering the diversity of classification schemes that are in practice worldwide. Countries such as the United States and Japan present advanced carcass grading systems, but the Australian system (Meat Standards Australia – MSA) (Polkinghorne et al., 2008) stands out as a model to assure consistent beef eating quality to its consumers. To such system is accredited the potential to increase beef consumption and industry profitability, since consumers are able to fulfil their expectations based on a positive eating experience.

In Europe, in spite of the efforts to regulate and compulsory label beef products considering traceability and origin aspects, reliable eating quality guarantee systems are still lacking. Most

existing labelling schemes provide assurance that set quality production standards for products that can be traced from farmers to retailers, but these do not effectively guarantee muscle eating quality at the consumer level. Previous studies have shown that consumers are only moderately to low interested in beef traceability as such (Verbeke and Ward, 2006; Hobbs et al., 2005), whereas their interest in direct indications of beef healthiness and sensory quality might be considerably larger. A well functioning and reliable beef quality guarantee system, including eating quality parameters, can potentially meet the current interests of European beef consumers. However, for such a system to be successful, insights in consumer interest and opinions are crucial. Therefore, the objective of the present study is to investigate European consumers' reactions towards the concept of a European system that focuses on guaranteeing beef eating quality. Additionally, the study investigates consumers' opinions and reactions towards beef muscle profiling, i.e. the analytical techniques and procedures to objectively characterise beef muscles (von Seggern et al., 2005), which is key to make informed decisions and to provide guarantees about individual muscle's quality traits.

Quality is a subjective term, which meaning varies depending on who it is used by and what for. Beef producers and agro-industries assess beef quality based on technical indicators about the characteristics of a product. Consumers, however, use a variety of meat attributes to assess beef quality, including colour, freshness, origin and palatability characteristics such as tenderness and juiciness (Sepulveda et al., 2008). To be able to guarantee a particular and consistent beef eating quality to consumers, one must be able to objectively measure it (Polkinghorne et al., 2008), which relates to the characterisation of beef muscles using specific instrumental methods and mechanistic analyses (Figure 1).

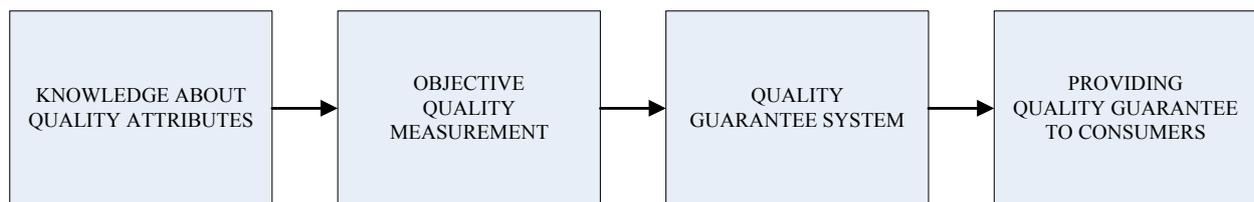


Figure 1. Building a quality guarantee system

Tenderness is one of the most important characteristics by which consumers judge meat quality (Jurie et al., 2007; Aalhus, 2002). The very irregular tenderness of beef products is one of the major issues which need to be addressed in the European beef industry (Eggen and Hocquette, 2003). Beef tenderness is influenced by various ante-mortem and post-mortem factors, including muscle characteristics and post-mortem changes induced by aging. Muscle type explains a great part of the variation of beef tenderness (Jurie et al., 2007). Since the late nineties, muscle profiling research has been done to characterise the traits of beef muscles. This research identified several individual muscles and muscle properties which affect processing characteristics and consumer acceptability (von Seggern et al., 2005). Muscle profiling allows evaluating the specific beef muscle characteristics that contribute to tenderness. Providing consumers with beef cuts that have a consistent eating quality and are guaranteed tender is a major challenge for the European beef industry (Allen et al., 2001). The development of a trustworthy eating quality guarantee system backed up by adequate muscle profiling research is crucial in this respect.

The present research is part of a wider study, which includes on the one hand consumers' perceptions of beef safety and beef healthiness and on the other hand attitudes towards innovative beef technologies. This study is part of the research project ProSafeBeef, a five-year integrated project funded by the European Commission, aiming at advancing beef safety and quality across Europe, and thus helping the beef chain in Europe to thrive and diversify (Miles and Caswell, 2008). In order to meet the above mentioned objectives, a qualitative study was carried

out in which beef consumers were asked to express their perception of a system that would indicate different beef quality levels, similar to the Australian system. Their willingness-to-pay was also qualitatively assessed, as well as their expected need for information about such system.

2. Materials and methods

Eight focus groups were conducted in the capital cities of Germany, Spain, France and the United Kingdom during May 2008. These countries were selected because of their significant market volume, both in terms of beef production and beef consumption, and strategic geographical location within EU. In each country, two group discussions with seven to nine participants were conducted, being one composed of women and another one of men. All focus group participants were beef eaters (at least once a week) and beef shoppers without aversion to beef, who live in the capital cities of the respective countries. The participants varied in employment status and age (16 to 60 years old) and both participants with and without children were included in the focus group discussions. The number and age range of the participants in each focus group are given in Table 1.

Table 1. Number and age range (years) of the focus groups' participants

	Germany	Spain	France	UK
Male	8 (29-52)	8 (25-47)	9 (19-58)	8 (21-54)
Female	8 (27-54)	7 (28-50)	9 (20-60)	8 (29-41)

The topic guide of the focus group discussion consisted of two main sections, in accordance with the objectives of the wider study. The first section asked consumers about their perception of and demand for beef safety, beef healthiness and related information. The idea of a quality guarantee system was discussed at the end of this section. The second section of the interview guide explored consumers' attitudes towards novel beef technologies. The discussed concepts included marinating, nutritional enhancement, shock wave treatment, thermal processing and muscle profiling. Genetic modification and cloning were discussed as well. For each of the four countries, the translated topic guide and an additional quantitative questionnaire was applied to the respondents in their respective languages.

The full transcripts of the focus group discussions in the local languages were used as data for the content analysis. The software NVIVO7® was employed as an appropriate tool for performing the content analysis, since it is considered a powerful research tool to analyse qualitative data. Since four different researchers completed the coding task, inter-coder reliability was controlled. The male group from London was selected for simultaneous coding. The coding decisions of every pair of coders were compared by calculating the reliability estimates percentage agreement and Cohen's kappa. The resulting kappa values indicated satisfactory inter-coder reliability.

3. Results

3.1 Muscle profiling

In the focus group discussions, consumers received the following descriptive definition of muscle profiling: "Instrumental characterisation of beef muscles through non-invasive methods (like rapid spectroscopic and sensor techniques) can give more precise classification of meat.

This practice can provide consumers with healthier cuts, or allow an upgrading of muscles that are normally considered as tough". The perceived advantages and disadvantages of muscle profiling and consumers' willingness-to-pay are reported in the following paragraphs.

3.1.1 Perceived advantages

Most consumers considered muscle profiling as an acceptable practice in beef processing. The three main advantages of muscle profiling discussed by the focus group participants were related to the method itself, the resulting beef cuts and the new opportunities of this concept.

A. Non-invasive method

Consumers tended to accept muscle profiling rather easily because of its non-invasive nature: "I don't have any objections, since the meat is not manipulated" (German man, 51 years old). Muscle profiling was understood as an optimised version of earlier cutting techniques: "It means instead of slicing off traditional, that part of the cow is the best beef; they actually go... well, this is the best bit of the cow, we can tell, to a depth of that. You know, that far, that is where the good meat is. And they can just take that off" (British man, 30 years old). Consumers considered muscle profiling as an acceptable way to enhance the tenderness and quality of the beef cuts: "It's more and more accurate, a more precise classification which means that it's not some butcher going yes this is this bit, this..." (British man, 30 years old). Consumers felt confident that muscle profiling will be able to select the best beef cuts and that the beef industry is trying to provide the best possible cuts to the market: "They take care to give us the best" (Spanish woman, 28 years old). The aspect of animal welfare was also important here. Since muscle profiling is performed on the carcass, the animals are not harmed by this practice: "It's good for the cow" (French man, 34 years old).

B. More tender beef cuts, and guaranteed tenderness

Consumers expected the resulting beef cuts to better meet their demand. Most consumers stated to appreciate more tender beef cuts ("The important thing is that the muscle is not tough" - Spanish man, 38 years old) and expected muscle profiling to provide high quality, tender and healthy beef cuts: "The best parts of the cow in the best way... the healthiest cuts" (Spanish woman, 37 years old). Consumers expected that muscle profiling will allow the beef industry to meet the demands of specific consumer segments which have special interest in tender beef cuts: "The elderly... they will exactly look for this type of meat with guaranteed tenderness" (French man, 58 years old).

C. New opportunities

One of the other perceived advantages of muscle profiling was the greater consumer choice between different beef cuts: "For the same price per kilogramme, you have the opportunity to take a leaner piece of meat, if you prefer that. While in other cases it is taken together, you cannot separate it, you have to pay for the fat. And then at home you will maybe cut it off and throw it away" (German woman, 45 years old). Furthermore, the possibility to provide extra information about beef cuts ("They can give us more information about the cuts so we are able to choose" - Spanish woman, 28 years old) and the prospect of new beef cuts and recipes ("Maybe we can begin to use them for other types of recipes" - Spanish man, 38 years old) were attracting to consumers.

3.1.2 Perceived disadvantages

The perceived disadvantages of muscle profiling stated by the focus group participants were related to the method itself, the resulting beef cuts and possible unwanted side effects.

A. Upgrading low quality beef

Not all consumers liked the idea of low quality beef getting the possibility to be upgraded by the use of muscle profiling: “It’s just low grade meat, trying to do it up a little bit. You know, if it’s low grade, it is low grade. You’re trying to respond it up a bit, then it doesn’t sound too healthy” (British woman, 38 years old). The practice is perceived as a trick of the beef industry (“It is putting old wine in new bottles” - French man, 51 years old) to be able to sell the low quality beef cuts. Therefore, some consumers assumed that this upgraded beef cuts will only be consumed by poorer people: “The poor can only afford these bad tricks...” (French man, 34 years old).

B. Not all beef cuts should be tender

Most consumers appreciated more tender beef cuts, but hesitation was expressed towards the idea of having all beef cuts equally tender: “I don’t long for making everything uniform” (French man, 51 years old). The less tender beef cuts were also fancied by consumers and they do not want them to disappear or become unavailable in their normal outlets. Furthermore, the experience of tenderness is perceived to be something subjective or personal: “Tenderness is something personal. (...) The question would be, what means tender for him and what means tender for me?” (German man, 44 years old).

C. Unwanted side effects

Consumers revealed to fear being faced with low quality beef cuts (“They will sell me beef cuts that otherwise would not be sold” - German man, 52 years old) and higher prices (“I assume that we will have to pay more for this” - Spanish woman, 48 years old).

3.1.3 Willingness-to-pay

Most participants of the focus groups stated that they are not willing to pay a premium for beef that has been “muscle profiled”, since “beef is already expensive” (Spanish woman, 48 years old). Because of the association with low quality beef, consumers even suggested that it should be less expensive: “When they offer it to me in the supermarket, I prefer to pay one Euro more and take the normal piece” (German man, 51 years old). Nevertheless, some participants indicated that they are willing to pay a premium for the resulting higher quality beef cuts: “If I really see a difference, maybe yes, we would consider paying more” (Spanish woman, 37 years old).

3.2 Beef quality guarantee system

Throughout the focus group discussions, consumers indicated to care a lot about beef quality. Consumers claimed to assess beef quality based on various intrinsic and extrinsic quality cues, though without ever being totally sure of their assessment during the purchasing stage. A quality guarantee system can be a useful tool for consumers to evaluate beef quality at the point of purchase. A possible guarantee system could indicate the eating quality, healthiness or

tenderness of the product with stars, e.g. five stars for products with a very high quality versus products with three stars with a moderate quality, similar to the MSA system. Consumers were asked to state what they think of such a quality guarantee system. The perceived advantages, disadvantages and consumers' requirements for a beef quality guarantee system are reported as followed.

3.2.1 Perceived advantages

Guaranteed beef quality was welcomed by most consumers, especially in France and Spain. The demand for guaranteed quality beef products was stated very clearly by one of the participants: "The problem is to find good meat, in fact. There are so many bad meats that are sold in big market places, so that I look for the good meat, because the bad meat is hard to chew and digest" (French man, 35 years old). Especially the idea of a system to guarantee the tenderness was appreciated by the focus group participants: "Because when a piece is tender, well, we are pleased, we appreciate it" (French woman, 43 years old). In addition, some consumers stated that it would also be a useful system for particular consumer segments, including consumers that cannot read, that cannot evaluate beef quality at all, or that usually do not pay attention to information about the quality of the product because of indifference or ignorance.

Although the idea of a beef quality guarantee system was welcomed by most consumers, consumers acknowledged that they already use some existing extrinsic quality cues in order to assess the quality of beef products, including price ("Price nowadays acts like the star system" - Spanish man, 47 years old) and brands ("You have got that like you say, they are almost graded already. If you buy Tesco's value or if you buy Sainsbury's, you know, Taste The Difference, there is your grading, you know what you are going to get. You are going to get a bit of old leather or you are going to get a decent piece. Kind of what it is rated for us, it's not A to B but you know, you go in, you see that's a fiver and that's a quid like you said, which one is the nicer meat" - British men, 21 and 43 years old). The system that provides guaranteed beef quality was considered to be at least as good and more convenient as compared to the criteria that are used to assess beef quality nowadays.

3.2.2 Perceived disadvantages

The German and British focus group participants seemed to be more sceptical towards a beef quality guarantee system. Consumers acknowledged that they do not believe in a uniform system to assess overall meat quality: "They could have some sort of scale you know, A to E or whatever how great the meat is. But apart from that you are not really sure, unless you are picking up the meat and looking at the pack and you are reading to find this cow was kept in this farm. There is no real way of scaling how good your meat is" (British man, 21 years old).

The other perceived disadvantages of a beef quality guarantee system were related to the quality of the beef in the lowest categories, the system's implementation costs and who is going to account for these, the risk for overload of information and the importance of personal cooking practices.

A major concern expressed by the focus group participants regarding the proposed quality guarantee system was that the lowest categories were perceived as problematic, because of the discriminatory nature of the system. When a product has only one star, consumers expected it to be 'less tender', 'a bad piece', 'maybe from another country, further away', and 'from a malnourished cow, or fattened up'. These concerns lead to some ethical problems, especially for the French female focus group participants, because poorer consumers are expected to be only able to buy beef with a quality that is unacceptably low: "It is terrible for those who don't have the means" (French woman, 43 years old). This discrimination between consumers was

expected to end in “a world with two speeds” (French woman, 58 years old).

Another concern was related to the measurement of beef quality. Consumers emphasised the importance of personal cooking practices for beef tenderness: “Every cook may burn the best rump steak once in a while” (German woman, 27 years old). The question arose whether overcooked quality guaranteed beef would remain tender.

Some consumers also stated a general concern about the implementation of a sophisticated guarantee system in terms of costs. They agreed that the application of all controls for each product would raise costs tremendously, what finally would need to be added on the end product’s price. Furthermore, a quality rating system can possibly overload consumers with information and distract them: “So if you are buying a cut you can see what it looks like, even if it is through cling film the wrapping stuff. So you know, putting a five star rating I think is overkill, saying this comes from Devon not Cornwall” (British man, 35 years old). Consumers expressed doubts about the actual usefulness of this extra quality information.

3.2.3 Consumer requirements

Focus group participants expressed various suggestions about how a beef quality guarantee system should look like, and how its advantages should be communicated.

A. Keep it simple

Consumers expected a beef quality guarantee system to be as simple as possible. It should be easy to recognise and to interpret and it should contain simple information. The provided information should allow consumers to easily differentiate between beef cuts or products. Generally, a system with stars would be appreciated: “It’s like the hotels, it’s good” (French woman, 20 years old). A scheme with traffic lights or colours could be useful as well: “Everybody knows that silver is the colour for Light Coke. It is fast and effective” (Spanish woman, 48 years old).

B. Provide extra information

Several focus group participants said that additional information would be needed: “When I’m looking for a traditional Spanish ham I’d like to have a 5-star, but it is also important to trade-off with the price and the origin” (Spanish man, 38 years old). For those consumers, it would not make a lot of sense to see only the stars without any further information such as origin, price, control, producer, breeding practices, processing method or additives. In particular, information about genetic modification was asked for: “And if it’s genetically modified, say that it has been genetically modified” (British woman, 41 years old).

C. Responsibility

British consumers placed responsibility for regulating a beef quality guarantee system on the government, and did not like the idea to let it stem from private initiatives. In addition, participants suggested that this system could be implemented primarily and preferably on a regional basis and as a result, it would become more efficient.

German beef consumers expected a quality guarantee system that is mainly managed and performed by producers, but needs to be monitored by independent institutions – otherwise “they mark everything green” (German man, 41 years old). Those institutions were also considered to be necessary for introducing a standardised system shared and supported by all actors. The concept of self-control was discussed in this focus group, referring to single or grouped producers

who pursue high quality standards and offer respective products already at the present moment.

4. Discussion and conclusion

The results of this qualitative exploratory study indicate that both muscle profiling and a beef quality guarantee system are relatively well, though not unconditionally accepted by European consumers. Muscle profiling is welcomed because of its non-invasive nature and the expected guaranteed tenderness. Also a greater consumer choice, the possibility of receiving extra product information and the development of new recipes are appealing to consumers. The major perceived disadvantages are related to the possible upgrading of low quality beef and the expected uniformity among beef cuts.

Our results indicate that a beef quality guarantee system is neither unanimously nor unconditionally accepted in cross-cultural terms. Participants in Spain and France were the most favourable towards such system, whilst the participants in Germany and in the UK were more sceptical. According to the beef consumers involved in the study, the main advantages of a beef quality guarantee system would be the certainty about quality, i.e. having certainty of buying high quality beef. A quality guarantee system would turn the beef purchasing process easier and recognisable. On the other hand, the actual price and existing brands at retail level are believed to already play the role of a quality guarantee system in consumers' minds. Furthermore, the high implementation costs and the (unacceptable) low quality of the lowest categories marked in such a system are perceived as problematic. Scepticism remains because of the perceived impossibility to measure beef quality and the importance of personal cooking practices for beef tenderness of the final product on consumers' plates.

The results from this study are based on focus group discussions and are thus only exploratory and descriptive in nature. Although the study covers four European countries, the respondent sample is small and not statistically representative. Since the participants in the focus group discussions were relatively heavy beef consumers this study does not allow to identify opinions and perceptions of low and non-beef consumers. Validation of the findings through quantitative cross-cultural studies is recommended. Nevertheless, the insights obtained from the focus group discussions are promising and thus indicate good opportunities for the development and benchmarking of a beef quality guarantee system in Europe. As an increase in consumers' satisfaction with beef products could lead to higher consumption rates, the introduction of a quality guarantee system can contribute to further market development and improved competitiveness of the European beef industry.

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