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Traceability perception of beef: a comparison between Spanish and Italian consumers

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Abstract
Nowadays, the increasing demand by customers and consumers for information on food quality and safety determines, to a certain degree, the structure of the food chain. Traceability is considered as a tool to reach and keep consumers' confidence, which became a central issue to restore consumers' confidence in beef safety after the BSE crisis that strongly affected the EU market. Numerous researches have been carried out to determine consumers' preferences related to quality and food safety. However, the consumer perception of beef traceability has not yet been studied enough. In this paper we want to investigate the perception of Italian and Spanish consumers on this issue by analysing the results of six focus groups carried out in both countries, in the framework of an EU project (TRACE- Tracing the origin of food) funded through the Food and Quality Priority of the EU Framework VI research programme. The differences and similarities in consumers' perception are analysed on the basis of the different product valorisation approach followed by the national supply chain in order to promote beef quality and safety. Finally, the paper shows the necessity to organise the supply chain product development and differentiation strategies in a consumer- based way.

Keywords : *traceability, focus group, beef market, supply chain valorisation strategies, consumer perception*

1. Introduction

Consumers are becoming increasingly concerned with the quality, safety and production attributes of their food . Consumers' concern with the safety and origin of beef is especially true in light of the recent European BSE outbreaks. Changes in consumer consumption attitudes were observed after this mentioned food crises, BSE, in some UE countries, like Germany, Ireland, United Kingdom and Sweden . In Spain, 49% of the consumers affirmed to have changed their habits of foods' purchase . Due to these crises, consumer confidence was not the only affected but also it caused important loses in food industry. According to estimations of the Spanish Ministry of Agriculture (MAPA), beef consumption was reduced by 40% in the first trimester of 2001.

In Italy, the share of those stopping eating beef after BSE crisis, though significantly reduced from 2001 to 2003, is still positive. Here, beef consumption has shown a drop from 25,3 to 22,5 kg/person/year in 2001, and a progressive, even not complete, recover until 2004, when 24 kg/person/year have been consumed (ISMEA, 2005). The choices of both changing consumption habits just after the BSE crisis and maintaining this change in the time, appear to a large extent independent of

socio- economic characteristics and hence seem to depend mostly on individual psychological characteristics (Corsi; 2005). Consequently, all these food scares and crises and their impact in consumer's confidence have brought numerous questions about quality and food safety. Consumers feel more concerned and demand more transparency in the food- chain as well as more information on food quality aspects, such as origin, way of production, absence of hormones, etc. .

Food crises, in particular BSE crisis, determined an important restructuring process in the whole beef sector in Europe, featuring new strategies. Loss of consumer confidence is recognised as the main problem of this sector and hence adopted strategies must be oriented to restore it. Data indicate that product differentiation is seen by agents of the beef sector as the preferred strategy. However, given the fragmented structure of the beef supply chain and the problems with the natural variability and the delivery of consistent quality of the product, beef has been considered until the mid '90s a sort of commodity, and the relative sector unbranded both in Italy and Spain (Sans, *et al.*; 2004; Mora and Menozzi; 2005).

In the last years we have witnessed an increase of the differentiation strategies in the beef sector, in particular Quality Certified Brands and Protected Geographical Indications (PGI) that have entered in the market. In Italy, on one hand, supply chain valorisation strategies have been largely applied by the main retailers. These strategies, supported by Quality Certified Brands and private labels, are intended to restore consumer's confidence in the product and to shape consumers' loyalty in the store (Mora and Menozzi; 2005). On the other hand, in Spain, the necessity of creating value and especially quality, made Spanish Government with the support of European Union to develop Specific Denominations. Data indicate that trade volume of these products has increased: according to data of year 2002 , commercialisation of meat products under PGI increased by 18.8%, even maintaining the same amount of PGIs since 2001. These figures cannot be compared to the Italian ones, since only one PGI is registered for beef products in that country (i.e.: "Vitellone Bianco dell'Appennino Centrale") representing essentially a limited and "niche" production [1].

The implementation of these tools was basically the result of beef sector interest in maintaining quality and safety of meat products, by means of guaranteeing a geographical origin, a production system and a stricter supply chain control. The effort made by this sector means, on one hand, an involvement and commitment with society, aimed to obtain quality and safe products and, on the other hand, it was focus to protect product names form misuse and imitation. When there is a market premium for 'safer' food, there is an incentive for firms with high food safety standards to identify this attribute in a label . Hence, one industry initiative is to facilitate provision of quality signals to consumers.

Branding, quality assurance and certification systems – usually with third party verification to strengthen its credibility- are some market initiatives to signal credible product quality to consumers. Traceability systems may facilitate to identify specific credence attributes related to food safety and quality issues, such as enhanced food safety practices or ethical preference issues: country of origin, animal welfare, cattle breeding methods, etc. Introduction and operation of traceability implies a cost but it is a tool, despite for occasional use, that provides food agents the capacity to track food items efficiently, reducing losses and specially to restore consumers' confidence .

This paper is structured in six parts. After this introduction, traceability and labelling policies of beef and beef products in the European market are discussed, as well as the consumer's demand in terms of quality and safety. Then, in section

[1] The Consortium data, as of December 31, 2004, registered 2,391 farms with the PGI status and 485 PGI sales outlets; the number of certified heads, increased in the last five years, was 10,826 in 2004 (0,16% of total Italian bovine cattle).

four, methodology and results of the qualitative research using focus groups are exposed at the light of the literature review. In section five, different product valorisation approaches followed by the Italian and Spanish beef supply chains are presented. Finally, main conclusions and discussion for further studies are exposed in section six.

2. Traceability and labelling in the European beef market

As result of the loss of confidence following the BSE crisis, it drove to rise supply chain traceability initiatives, which emerged basically in the UK beef industry and motivated by the pressure from downstream retailers . Although traceability is compulsory in the European Union for food and feed products since January 2005, some years before, on January 1st, 2002 was in force an EU mandatory beef labelling and traceability systems regulation (Regulation EC 1760/2000). The pass of that Regulation took place less before unleashing a second BSE crisis and allowed to the beef sector to react rapidly to the pressing consumer demand for a labelling informing about origin of beef. According to this Regulation, each Member State is obliged to have a national cattle identification and registration system. All beef products must be labelled with a traceability number identifying origin, including where the animals were born, reared, slaughtered and processed. Moreover, there is a voluntary labelling with additional information: for instance, production information, animal welfare information, etc.

The implementation of an European normative introducing a compulsory system for the track and tracing as well as labelling of beef products became essential for recovering the loss confidence of consumers and to restore beef consumption in the EU. In fact, these rules sustained the re-establishment in beef consumption during year 2002, and encouraged the creation of a mandatory traceability normative for the whole European food sector. However, there is a difference between traceability imposed in the beef sector and traceability expected from 2005. Whereas in the beef meat sector it is compulsory to save and move along the chain all the gained information at each stage; in other food sectors it is only needed to register retailer and customer data by each agent . Certainly, the identification and tracing of animals in the event of a major crisis on the scale of BSE would have been virtually impossible without an adequate traceback system .

The importance of beef traceability and labelling system, as introduced by Regulation (EC) n. 1760/2000, can be summarised as follows:

- defining each agent's responsibility along the supply chain, it aims to reassure the consumers on producers and processors behaviour;
- it gives information about the country of origin of the cattle (born, raised, slaughtered and processed in...); this might be important both from consumers' point of view, improving market transparency and turning a credence into a search attribute, and from national producer's point of view, assuming that domestic consumers will prefer domestically produced food (Hobbs; 2003);
- the full traceability along the supply chain, and the indication of an identification number or code, guarantees the trace-back and market withdrawal of the product as rapidly as possible in case of need.

Traceability systems allow the provision of quality signals to consumers which are highly required in efficient markets. The meat sector recognized the potential role of traceability in guaranteeing and reinforcing consumer confidence in food safety and as a product differentiation strategy.

Next to these direct benefits, aiming to change the information environment in beef market, the mandatory and voluntary labelling introduced by the Regulation may have other important effects. As suggested by Caswell (1997), they may influence supply chain organisation, relative competitive positions and product formulation;

secondly, it may assure consumers on the public surveillance on the quality attribute of the product. In other words, labelling policy may have an option and an existence value independent by the actual direct use value attached by consumers.
However, food producers and retailers are well aware that labelling is a limited resource from at least two points of view. Firstly, space of the label itself is limited; this means that a trade-off among mandatory information and voluntary ones arise. Secondly, consumers have limited ability and willingness to process a great deal of information. This especially because consumers devote a limited amount of time in shopping and behaviour is become quite "routinized" . Thus, an overloaded provision of information might have potential adverse effects resulting from consumer indifference. An overloaded label or package might cause consumer ignorance due to the lack of time or ability to process such information. Additionally, it may also yield loss of confidence from non-understanding . In conclusion, to be effective, the information labelled have to be read, processed, understood and accepted by consumers .
The main question for the Italian and Spanish food sectors and food researches is which indications consumers are interested in. This is essential, considering that in some countries the mandatory beef labelling information are the least important and least attended cues by beef consumers (Verbeke, *et al.*; 2002). Hence, there are some reasons for focusing on what consumers really need or expect in terms of information. Therefore, a currently challenge is to target an optimum level of simple, clear and credible information to improve consumers beef quality perception.

3. Consumer demand for food quality and safety and his 'right to know or to be informed'

During the last decades, food quality and food safety issues have become aspects of greater attention due to the existing awareness on aspects related to new agricultural productions, animal welfare concerns, employment of hormones, etc. Even more, since last food crises, consumers are demanding more transparency in the food-chain and more information on the diverse characteristics of foods . There have been developed many routes for delivering messages about food quality and safety to consumers. As commented above, the use of quality labels, brands, origin certifications are, on the one hand, some examples of food sector responses to product differentiation opportunities and, on the other hand, commercial strategies to reduce risk exposure and maintain consumer confidence. Mandatory labelling of credence attributes has been justified on the basis of consumers 'right to know', for instance, genetically modified foods, country of origin labelling, some ways of processing, such as irradiation, etc.
Consumers' expectations on food quality and safety are driven by extrinsic and intrinsic cues that might vary among persons, countries, situations, experiences and, for a given population, across time. Purchase decision can be considered as a sequential process; the determinant factors which affect quality and safety perception will vary across the different stage of the process, depending if the consumer is considered before purchase, at the point of sale or upon consumption (Issanchou; 1996). More simply, as pointed by the Total Food Quality Model , it is possible to distinguish between before and after purchase evaluations. The model aims to investigate what quality means to consumers, and especially how they integrate different information (intrinsic and extrinsic quality cues) in order to develop their quality expectations at the point of purchase and, finally, how these are related to the quality experienced by final users after consumption.
For beef, different attributes are considered in the definition of quality perception and expectations. These can be summarized as shown in , according to the

distinction, on the one hand, between intrinsic and extrinsic attributes, and, on the other, among search, experience and credence attributes. It has to be noted that some attributes, typically considered as credence items, such as breeding and feeding methods, age, breed, sex and category of the animal, fattening and conformation of the carcass, can be translated into search attributes by means of the application of the voluntary labelling scheme introduced by Regulation EC 1760/2000.

Table 1. Quality attributes of beef

	Intrinsic	**Extrinsic**
Search	Colour, fat content, fat lump, fat rim, marbling, cut of meat, age**, breed**, sex** and category**	Brand, origin certification, organic production methods, PDO/PGI certifications, origin information (country of born, fattening, slaughtering and cutting)*, traceability identification number or code*, feeding methods**, breeding methods**, fattening**, conformation**, purchase location, price, conservation, packaging
Experience	Tenderness, smell, flavour, taste, freshness, juiciness	
Credence	Freshness	Use of hormonal growth promotants, use of antibiotics, nutritional content (fat, cholesterol, etc.), healthiness, environmental friendly practices, animal welfare practices.

*: mandatory labelling system of beef products
**: information to be added by means of the voluntary labelling system of beef products
Source: our own elaborations on Becker (2000).

However, many researches have noted that the level of correspondence between expected and experienced quality of beef product is fairly low, leading to consumer's un-satisfaction and uncertainty. This is why brands and labels on the one hand, and reliance on shopkeeper on the other often serve as a reliable and predictive quality and safety cues to the consumer's decision process. Hence the important role of information systems in order to communicate food product characteristics based basically on credence aspects. Confidence and trust on carried information depend on the information source. However, the attempt to overcome information asymmetry between final handler and consumer through labelling or branding implies an incentive for traceability, as superior solution to avoid uncertainty on provided information. Therefore, on this paper we analyse to what extent are consumers really aware of traceability and it is perceived as a new route to provide consumers credible product and process information.

3.1. Aim of the study

In the framework of a large European Research Project, TRACE, the objective of this paper is to give a comprehensive overview of the currently state-of-art of beef traceability in two Mediterranean Countries, Italy and Spain, based on the results of an exhaustive literature review and qualitative research by means of focus group technique. Although traceability is now mandatory for all food products, analysis will be focused on beef since it has a longer history linked to the implementation of traceability in Europe.

4. Methodology and Results: literature review and focus groups

As first stage of the project, an exhaustive literature review of existing papers was arranged aiming to comprehend current state-of-art of the research of traceability from consumer perspective. This step also had the objective to identify open fields

of study in order to get a deeper understanding of the role of the 'ability-to-trace' concerning food production systems and food products, especially beef, as a cue in consumer decision-making. Information was gathered in each country from publications in journals, books, conference proceedings, reports and thesis published in the last 10 years whether in own or other language.

Subsequently, focus group interview method was chosen for the qualitative part. This is a widely used method in marketing research, for which a large literature on practical and theoretical applications exists. However, because of its qualitative approach, it is often used in combination with quantitative studies . In this case, the focus group technique allowed to gain information on consumer traceability perception along different European countries, in order to outline further stages of the research. In this paper, we focus on the results of Italian and Spanish participants, displaying differences and similarities between them.

One pilot focus group and three focus groups per country were organised in summer and fall 2005 respectively, in both countries. The number of participants varied between 8 and 12 persons per group who were recruited basically by means of a list of contacts. In the Italian case, several participants answered to the specific announcement published for the purpose on local newspapers. Although it was arranged to get well balanced concerning gender and age of participants, women are still the habitual person in charge of purchase at home and hence more involved with food purchase aspects. This is particularly true for the Spanish focus groups; for the Italian ones genders are more balanced, while average age of participants is lower, with only 17% of people over 60 years old, and more workers involved (half of the participants were "in paid work" employees). This can probably be explained by the hour of the focus group which was established late in the afternoon in the Italian case, allowing working people to participate and discouraging older people to take part at the discussion. Each session was conducted by one moderator who asked the questions and some co-moderators who took written notes and also cared of recorders and pictures delivering. Sessions were digital and video recorded and lasted no more than 90 minutes. Afterwards they were transcribed word by word.

For each focus group it was prepared different guides, increasing the demanded level of participants' involvement with traceability. Hence, it was necessary to recruit different kind of consumers depending on their capability to understand the discussed points concerning traceability and level of food orientation. In Spain the recruitment criterion for the last focus groups was mostly based on the educational level in order to generate interesting results, while in Italy this criterion was not explicitly followed. shows the profiles of the participants of the organised sessions.

Table 2. Main focus groups profiles

Socio-demographics	Categories	ITALY	SPAIN
Gender	Female	58%	76%
	Male	42%	24%
Age	18-39 years old	42%	28%
	40-59 years old	42%	32%
	> 60 years old	17%	40%
Educational level	1st Basic	25%	4%
	Secondary	25%	16%
	Post-secondary	8%	12%
	1st tertiary	42%	68%

Socio-demographics	Categories	ITALY	SPAIN
Labour situation	In education	13%	8%
	In paid work	50%	28%
	Unemployed	13%	8%
	Retired	17%	36%
	Housework	8%	20%
Income level (€/month)	<900	17%	8%
	901-1499	29%	8%
	1500-2249	13%	12%
	2250-3000	25%	20%
	> 3000	0%	0%
	Not mentioned	17%	28%

For the data analysis, it was chosen Atlas.ti 5.0, software indicated for qualitative analysis data. Instead of using visual coding, this software provides tools for coding at codes, which are basically containers of information, i.e. concepts, or abstract

ideas. Working with Atlas.ti, our research is made easier as long as it allows us to manage and synthesize ideas. We indicate in following chapter the most salient items and results of focus groups.

4.1. Findings from Literature Review

According to the number of found references, double in Spain than Italy, it seems that traceability is a topic much more salient in the first country. However, it is outstanding that, whereas Spanish authors prefer publishing in their native language, most of the reviewed Italian publications are in English. Nevertheless in both countries the mostly references belong to articles published in the last five years journals, followed by conference proceedings. Hence, we might assume that traceability is in somehow a new topic. The most quoted issue in both countries was origin. Whereas food safety and quality were the most salient items in Spain, there is an existing interest in Italy in topics like organic food, traditional, typicality and communication. Among the reviewed papers, 17 (40.5%) are related to meat in Spain and only one (11.1%) in Italy. As we have mentioned previously, the study of food quality perception and food safety has been issue of great interest in the last years due to emergence of new production systems, food scares food risks and crises. Traceability is displayed by Spanish literature as a tool to control and assess food safety, due to the current existing risks attached to the manipulation of food products as well as to guarantee consumers' confidence, differentiating 'safer' products among the others. Hence an adequate traceability system is required in order to manage properly risk alarm coordination. Communication is a key aspect concerning food alarms that is also covered by the literature in relation to traceability. Transmission of credible information in real time is expected in case of a food risk and traceability aims to provide credible and reliable information to consumers. But by whom and how should be provided this information? There are questions to be answered in the following chapters according to results of focus groups.

4.2. Importance of attributes of food products

Generally, origin, price and expiry date are the attributes mostly perceived by both Italian and Spanish participants at the purchase place as emerged by focus groups. National fresh products are commonly perceived as higher quality products and for some participants, a higher price is related to higher quality.

As it can be seen in Figure 1, country of origin is the most considered attribute for beef in both countries, even if some differences can be found. In Italy the national origin is generally preferred, whereas in Spain, next to the national origin, has to be considered the importance attached to some specific regional productions (in many cases PGI) and to foreign products perceived as higher quality (e.g.: meat from Argentina). Price seems more important for Spanish participants, whereas trust feeling in shops and shopkeepers is strong in both countries. Expiry date is perceived as an important extrinsic cue both in Italy and Spain.

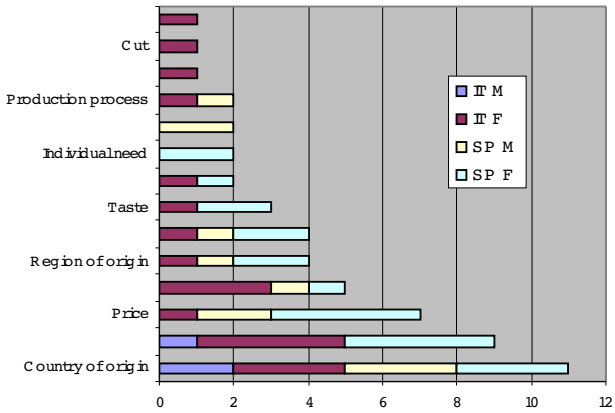

Figure 1. Number of quotations coded according to the indicated codes attached to the beef quality attributes, per country and gender*.

* Total Italian Female = 10, Total Italian Male = 6, Total Spanish Female = 12, Total Spanish Male = 4

Despite being a qualitative analysis, these results correspond to conclusions extracted from previous researches on consumer perception of beef quality and safety. For Spain, results of preceding studies indicate colour and place of purchase as the most perceived quality cues and price which had a positive influence on expected quality. A later study which analysed consumer beef preferences by means of a Conjoint Analysis, demonstrated that price followed by presence of certificated quality label are key factors for choosing beef at the point of purchase . These authors affirmed that PGI quality labels are most preferred than unbranded beef. Both price and quality labels are extrinsic cues which are perceived as relevant cues when consumers do not dispose from adequate information on intrinsic quality cues. However, according to the participants, and by preceding studies , butcher is nowadays the main and most valued place to purchase beef in Spain. The importance attached to the origin of meat by Italian consumers has to be considered as a sort of rational evaluation of the consumer about meat safety and not necessarily linked to consumers' regional identity, value of 'locality' or the 'sense of belonging', as expressed by De Cicco et al. (2001). On the contrary, preference for national origin of beef is more linked to the trust on controls within the national boundaries and to the safety of the product. This feeling among the participants was also supported by the other most considered attribute, i.e. expiry date. In this case, the 'consume by' information is considered as a cue of the freshness and, indirectly, of the safety of the product. Finally, the trust on local butchers and retail cooperatives is also highly perceived by Italian participants. Even in this case, it can be interpreted as a credence quality attribute for meat safety (P3: "I usually get meat from the Coop and Ipercoop [2]. They often send information home to say that the meat has been controlled"). The importance attached by Italian consumers to origin, expiry date and quality control has been shown also by a quantitative study performed by Bernués *et al*. (2003) in different European regions. This study, by means of a Principal Component Analysis (PCA) and a non-hierarchical Cluster Analysis, identified Italian consumers as 'quality/safety orientated', that is more sensitive in quality and safety properties of meat prompting a demand for more labelled information.

4.3. Origin and quality labels

[2] Names of shops belonging to the Coop Italia, the most important Italian retailer.

Often, consumers make inferences based on cues which they feel confident, such as colour or visible fat, although these characteristics are not always high predictable of meat taste and tenderness. The use of intrinsic cues to infer actual quality can be quite misleading, as it does not always enable to identify real improvements in quality. Therefore, producers' reaction is more and more oriented to find new ways to differentiate their products and attract consumers. Brands, cues related to product origin and quality labels are some of the signals, or extrinsic quality cues, that were recently introduced to help consumers purchase decision based on inferred quality.

Focus groups shown that, generally, Italian consumers trust the labelled information on Italian products more than on other countries products. However, opinions between participants diverged: on the one hand, some countries are felt as rigorous as Italy in the application of standards and norms, and in some cases even more than Italy. On the other hand, participants were less confident to purchase a foreign product even with reference to the traceability system and information attached. In the case of scandals, most of consumers think that the guarantee of the market withdrawal harmful products within the Italian system is hardly possible. Some participants (not completely agreed by the group) felt more confident with bigger industries/brands compared to smaller ones. In all cases, governmental institutions are those who should provide the highest confidence in food safety controls.

In Spain a common perception is that the 'ability to trace' must be translated in an indication of the specific origin of the food product for the final consumer. Concerning quality labels, they are associated to a major control and hence a guarantee of traceability. Generally, there is an extended dissatisfaction feeling concerning the food controls accomplished in Spain. They declared themselves as having confidence on the controls that are being carried out but according to them quality may be improved as well as control inspections. They are generally more confident with European food products. So, in both countries quality labels are connected to higher controls and to the confidence in the traceability system.

Concerning cues related to product origin, i.e. EU origin quality labels, such as Protected Denominations of Origin (PDO) and Protected Geographical Indication (PGI) are usually used by consumer as a link of the product to the knowledge of an origin region which may be relevant in forming a quality evaluation. However, consumer must feel confident when using this information, otherwise they will not demand these labels, and neither will buy differentiated products. As we have said, confidence in inference-making is strongly linked to knowledge and expertise . In order consumers do not misinterpret their meaning, an adequate communication strategy is needed as suggested by many previous studies on consumers' judgement process . On the other hand, just giving consumers more information will not reduce an information asymmetry; thus clear and reliable information must be provided.

After having displayed on the table three different seals: PDO, PGI, and Traditional Specialty Guaranteed (TSG); participants were asked to write down name of brands which came up quickly to their mind. Noted brands names were mainly related to dairy products, olive oils, frozen products, chocolates, wines, tinned food, beers and meats among others. It is outstanding that beef quality labels were regarded by a couple of persons in the Spanish focus group, and by none in the Italian one. The latter case is probably due to the limited diffusion of EU origin quality labels in the Italian beef sector, while in the former case, the lack of awareness may be a consequence of an inadequate marketing campaign. Secondly, a lack of interest to that kind of certifications since butcher is still their quality mark. De Carlos, *et al* concluded that, even though Spanish consumer associates brands to more safety and confidence conditions, butcher is more than anything considered as his/her

own quality label. The willingness to pay for a quality and origin label depends on the kind of product. For instance they would pay a higher price in case of fresh or daily products rather than in case of pasta, honey or tinned products. Becker affirmed that a higher confidence on a quality cue increases the willingness to pay for it. Therefore, it is a key aspect to inform consumer about quality differences on products as long as it provides them certain confidence.

4.4. Definition of traceability

Up-to-date, there are many concepts defining traceability. According to the EC General Food Law Regulation 178/2002, traceability is the ability to trace and track a food, feed food producing animals, and any other substance intended to be, or expected to be, incorporated into a food or feed through all stages of production, processing and distribution. From technicians' position, traceability is the possibility to dispose on the history, use and localization of one entity through registered identification (ISO 8402), whereas industrial point of view is more related to the ability to identify rapidly, in case of any problem, the different suspected lots as well as the responsible persons. However, the main issue for us is the consumer and hence, it leads us to get a deeper understanding of his/her perception and expectances concerning traceability.

During focus groups many terms aroused when we asked for a definition on traceability. Generally, participants of both countries had a good knowledge of meaning of traceability and in case of not having ever heard about it, could satisfactorily infer its meaning. Italians perceive traceability mainly as adequate to guarantee origin and authenticity of traditional products. It is believed to be a good information provision system to assess quality of food products. Expected benefits from a well-traced product are the possibility to have more information and in general the participants have not confidence that the companies will react quickly in case of need.

In Spain, terms such as origin, location, control and pursuit of the product were mostly mentioned in relation to traceability but, as difference of Italian perception, Spanish refer to traceability as a health and food safety guarantee, mainly valuable to avoid food risks. Generally, it is conceived as a tool which facilitates to know accurately the origin of products and helps to distinguish non-conventional products, i.e. those produced by means of new production systems, from conventional; and provide information of the origin. The main attached benefits are mainly food safety, secondly, awareness of location of the food products and finally, a better capacity of reaction in case of a food scare. Moreover, participants were aware of the benefits, that traceability generates for the food industry as an instrument to control their own products and as a marketing strategy to protect their image. In the following figure, it is shown some concepts attached to perception of traceability by participants in relation to the percentage of quotations found in the transcripts of focus groups session.

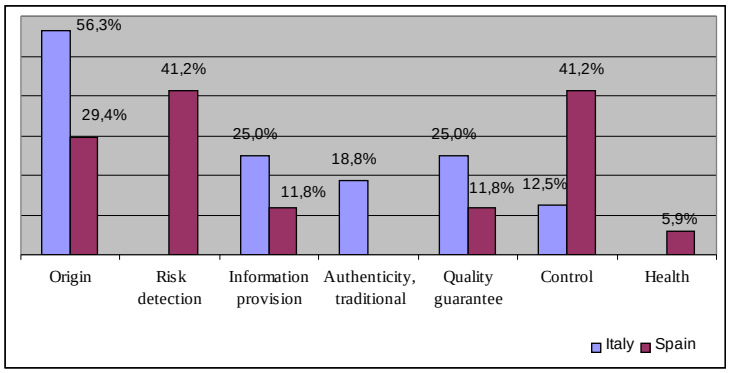

Figure 2. Percentage of appearance of quotations coded according to the indicated codes attached to perception of traceability

It is outstanding the different perceptions of Italian and Spanish consumers. Whereas Italians perceive traceability utility as more oriented to assess origin and authenticity, Spanish expectations are linked to a major level of risk detection and for the control of the product and production process. Probably, this cultural difference may be due to the world-wide existing imitators of Italian food products, such as Parma ham. Hence the increasing concern of Italians consumers to be certain where their foods comes from. Although some Spanish food problems are also being imitated, such as existing Rioja wine in US, it seems that participants' main concern is to be assured of the transparency and control along the food supply chain. Figure 3 and Figure 4 show different traceability perceptions related to gender and age of participants.

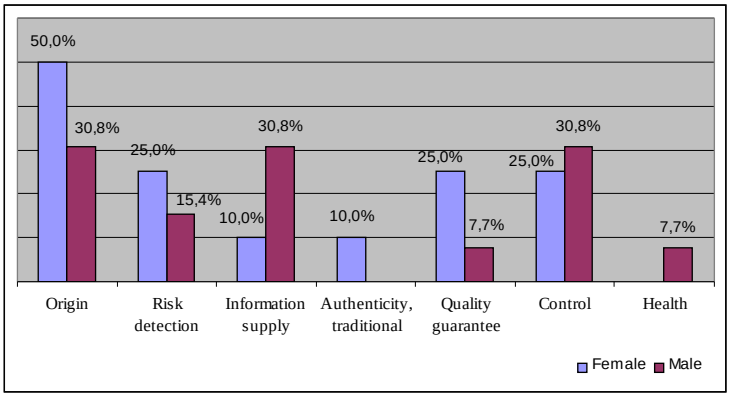

Figure 3. Percentage of appearance of quotations coded according to the indicated codes in relation to the gender of participants*
*Total of females= 20; total of males= 13

Whereas women seem to relate traceability more to the origin, men are mostly aware of the importance of that system in order to control the product and production process as well as to detect possible risks and as liable source of information. It is also outstanding to observe that medium-age participants mainly considered traceability utility to ascertain the place of production of a food product and its authenticity, while young consumers perceive it also as a control and risk detection tool in order to assess quality (Figure 4).

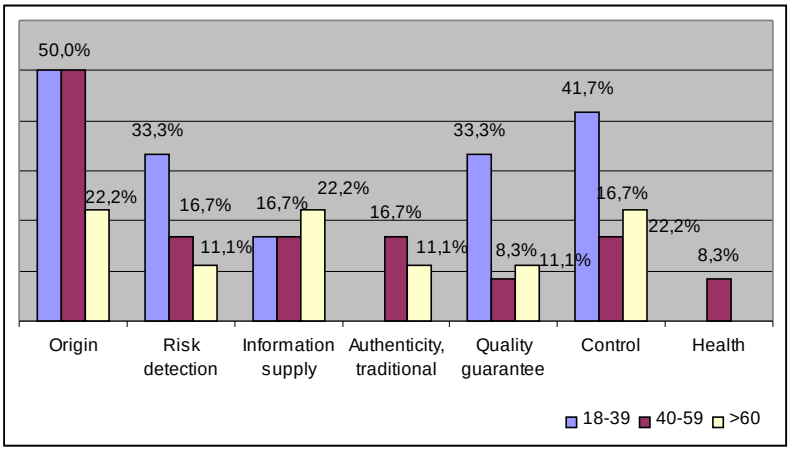

Figure 4. Percentage of appearance of quotations coded according to the indicated codes in relation to the age of participants *
* Total of participants under 18-39= 12; 40-59= 12; >60= 9.

According to participants from both countries, a public authority must be in charge of promoting the establishment an adequate traceability system along the food chain. Consumers from both countries are used that, for instance, in case of any food scare, public authorities (national and regional ones) were the first to react instead of the affected company or food sector. Perhaps consumers from these countries still don't feel too much protected by their respective governments. Nowadays inspection on controls is an issue to be improved and a clear and precise mark/logo would satisfy Spanish participants in order to assess the correct supervision of a food product. Among the supply chain players, Italian participants felt that retailers and, secondly, producers and processing industries should inform consumers on these issues.

4.5. Beef traceability perception

Traceability is seen by the participants of both countries like an adequate system able to guarantee origin information and health and food product safety. This is also true for beef, where participants felt that a traceability system would enable supply chain to give more information on product history and to assure the product withdrawal in case of need.

In the second focus group Italian and Spanish participants where asked to rank four different pictures of beef products according to their level of traceability. The most preferred products in terms of traceability in Spain are "Retailer brand, National origin" and "POD Label"; in Italy are "Retailer Brand bullock Italian/French Origin" and "Strong retailer brand calf, National origin".

Results from the following discussion shown that for Italian participants a good traced product can be evaluated on the basis of the detailed labelled information, such as the presence of an animal identification number, the indication of the specific farm and slaughterhouse where the meat has been processed, the non-GMOs feeding methods. Finally, the trust in the cooperative retailer directly lead to the trust in its "ability to trace" food products. On the other hand, the perceived less traced product is the one with more general information about origin and row materials.

Spanish consumers infer traceability information especially from the origin of the product. Even if they didn't find many differences across the displayed pictures, they generally preferred the national products compared to the foreign one. Some of them argued that for foreign product it is more difficult to preserve the cold chain because of the distance. For both Spanish and Italian consumers the difficulty to read labels lead to feel uncomfortable with product traceability. This feeling evokes the necessity to display more synthetic and clear information.

Table 3. Perceived cues to assess the level of beef traceability.

Good traceability cues		Bad traceability cues	
Italy	Spain	Italy	Spain
▪ Presence of an animal identification number ▪ Identification of farms and slaughterhouses ▪ Non- GMO feed (GM traceability) ▪ Trust in the retailer	▪ National origin ▪ Flavour ▪ Good general presentation ▪ Individual preferences	▪ Too general information: missing the name of the farm and/or the slaughterhouse ▪ General lot number ▪ Uncomfortable to read the label (not clear)	▪ Foreign origin ▪ Distance / transport conditions (preserve the cold chain) ▪ Uncomfortable to read the label (not clear) ▪ Bad presentation

4.6. Different supports for traceability

Traceability is often proposed primarily to reduce the information asymmetry within the supply chain. As commented previously, in both Italy and Spain,

traceability is considered as an information provider of the origin of the food product and in somehow, a tool to assess food safety. Implementation of traceability may evolve into more market-oriented structures within the supply chains and also to incentives vertical coordination and integration. The adoption of traceability technologies depends in somehow, on the level of inherent production uncertainty and the uncertainty created by, for instance, scares and crises.

Different propositions of traceability supports were assorted to be displayed during one of the focus groups in order to get consumers perceptions: labelling, bar codes system, laser printed information and RFID. It was considered more adequate to show pictures of examples for each technique in order to arouse opened discussions to different opinions, as proposed Morgan .

As support of traceability in non-packaged products, it was displayed a labelling system to participants. As first impression, many reacted against putting a label on a fresh product and even doubted on its veracity, especially on the ability to be attached to each fresh food product. Despite the mistrust shown initially towards labelling, as it is not certainly perceive as achievable, both Spanish and Italian participants agreed on its advantage to include more information compared to other techniques. However, it was remarkable the fear of fraud as long as it is perceived as easily manipulated. Italians demanded a certification in order to trust fully on the provided information. Additionally, there was a general agreement avoiding 'marketing labels', i.e. labels aimed as a company marketing strategy.

Spanish participant seemed indeed willing to trust in the existence of an 'ability-to-track and trace' food products but also demand direct and clear information, mainly concerning origin, variety, date of production, etc. They are aware of the importance of being able to have access to more detailed data about the 'history' of the product, even though admit not being willing to pay attention to it. Italian affirmed to be willing to pay 10-20% more for such kind of system.

Bar codes were displayed as a traceability support for fruits and vegetables. This system can be used by consumers to access websites or other information systems in order to learn more about where the products are originates. Conversely, as general impression in both countries, participants agree that it does not provide any direct nor relevant information to them but it might be more valuable for food chain agents. On the one hand, to see such kind of technique at the moment of purchase provides certain tranquillity to Spanish participants but on the other hand, there is an existing fear of its toxicity, mainly for Italians. However, there would be even willing to pay almost 10% overprice for it. Nevertheless, labelling compared to bar code system is seen as more 'eye-catching' and valuable.

Laser printed information on fresh fruit, such as a tomato or on eggs was the third displayed technique. According to participants, it is worthwhile as long as it shows clear information as opposite to bar codes. Conversely, it is not well perceived to be implemented on food product which peel might be consumed due to its apparent toxicity.

As last technique, RFID was generally not well accepted by participants. Certainly, more disadvantages than advantages related to it were mentioned. For instance, difficult and costly implementation only reached by big stores; less practical, as it need for a code-reader to get the saved information and perceived unhealthy effects on customers are some of the aroused comments. As advantage, it was agreed that it consists of a less-time consuming tool that makes faster the purchase and it allows the access to a greater deal of information not available by other techniques. However, it seems to need of a great money inversion, which participants are not willing to afford.

Summarizing, Italian and Spanish participants seem to prefer mostly traditional ways of information provision, such as labels in spite of their persisting fear of fraud. Additionally, techniques that avoid redundant information, providing clear

information, such as laser printed in peeled food products might play an important role as new supports of data in the next future. Considering these results, we might assert that labelling might continue as the most preferred information support concerning beef meat products. The perceived toxicity of laser printing and RFID techniques might be a handicap for their implementation on beef and bar codes might be used as an accompanying support.

5. Product valorisation approach followed by the national supply chain: the case of retailers' private label

The beef market in Italy and Spain was characterized by important changes given by the new labelling and traceability regulations and by the strategies adopted by the actors of the supply chain. The coming into force of the European Community Regulations on beef labelling has partly led to a reshaping of the structure, organisation and strategies of the European beef chain. From being unbranded, the sectors have become branded and there is a great deal of tension, particularly between private labels, in the struggle to gain customer loyalty, through a differentiation that expresses itself in the product specifications. The objects of these specifications are gradually explained to the consumer through voluntary labelling, but more often through information campaigns at the points of sale. As suggested by Sans et al. (2004), in recent years retailers increased their prescription power too along the supply chain, by developing actively with producers and processors beef specifications defining products' intrinsic and extrinsic attributes.

The growth of the large scale retailers in Italy has led to the creation of big enterprises, even if the leading Italian distribution chain, COOP Italia, reaches a turnover equivalent only to one third of Carrefour. In around 2000, the private labels were introduced for fresh sectors: meat and vegetables. The large retailers then launched a marketing strategy offering food quality and safety guarantee, especially following the dramatic BSE crises. The strategy followed by Italian retailers to restore consumer confidence after BSE crisis had, as a key element, the development of new brands, associated to the retailer's private label, guaranteeing the origin of beef, the feeding and breeding practices, the absence of growth hormones and, in some cases, the respect of animal welfare standards (Mora and Menozzi; 2005). The large scale retailers have recently developed their own umbrella labels for a range of products including meat, vegetable and other processed products with a specific quality and safety content, and dedicated lines for typical and organic products. The efforts made by the large scale retailers to reassure beef consumers and win their loyalty have been amply recompensed by the increasing market share at the expenses of butcher's shops and by the growing private label's market share.

Two big French retail groups operating in Spain have developed similar beef valorisation strategies for Spanish market, and different ones in their home. In a context of intense competition between quality specifications, the two retailers have developed marketing communication strategies according to the Spanish situation, using "supply chain brands" as differentiation tools to ensure consumers' loyalty (Sans *et al*.; 2004).

In both countries, the main retail groups tended to provide voluntary information in order to develop certified brands. They adopted multi-product policies aiming to differentiate a range of products carrying the same brand, highlighting some common concepts. In this context, the application of the beef voluntary labelling by Italian and Spanish retailers allowed to add information on the label of the beef meat sold under the private label about the animal, the production system, the feeding, the bred, and so on.

Table 4 shows the brands of certified beef developed by retailers in Spain and Italy with highlighted product guaranteed attributes.

Table 4. Brands of certified[3] beef developed by retailers in Spain and Italy

Retailer name	Spain		Italy	
	Brand	**Characteristics**	**Brand**	**Characteristics**
Carrefour	Calidad Tradición Carrefour	Pure cattle breeds and cross-breeds; 100% vegetable feed; Full traceability from farm to store; Slaughtered and cut in Spain.	Filiera Qualità Carrefour	Full respect of animal welfare for calves and beef; Vegetable feed free from growth hormones and chemically synthesized products, including health treatments; Full traceability and recall; Born in France and Italy; Italian slaughterhouses and feed producers; Three French breeds (Limousine, Charolais and Garonnese) and one Italian breed (Piedmontese).
Auchan	Producción Controlada Auchan «Villa del Monte» brand	Animals bred in Certicar certified farms; 100% vegetable feed; Packaged between 48 and 96h after slaughtering; Reinforced control mechanism concerning the use of growth promotors and antibiotics; Full traceability from farm to store.	Filiera Controllata Auchan	Animals selection; Respect of breeding methods, such as vegetal feeding, animal welfare, etc., both for calves and beef; Chain third part certification and traceability (full traceability from farm to store); Slaughterhouses selection and audit; Control during transport; Good taste.
Eroski	Carnspalleja, Consumer Natur Q, Consumer Natur, Vacuno Kampio	Animals bred in Certicar certified farms; 100% vegetable feed, without use of growth promoter antibiotics; Full traceability from farm to store; Minimum maturation period (varies according to the weight of the carcass).		Not present in Italy
COOP Italia	Not present in Spain	Qualità Sicura COOP	Selection of the breeds (Limousine and Charolaise); Controlled feeding (vegetable and OGM free) and fattening; Analyses on animals, farms and meat for anabolic steroids, drug residue, environmental pollution and microbiological features; Respect of animal welfare; Selection and strong contracts with slaughtering and cutting; Internal audit.	
Esselunga	Not present in Spain	Naturama	Cattle from Ireland bred extensively: (< 2 grazing heads/ha), intensive laboratory test program on beef quality and safety; All suppliers (often on an exclusive basis) accept these specifications and are obliged to undergo the inspections of the Esselunga technicians (safety and organoleptic quality of goods).	
Panorama (Gruppo PAM)	Not present in Spain	Programma Natura	Selections of breeds (Garonnese and Piedmontese cattle); Full traceability; Breeding information; Nourished with the fodder and feed produced by the farms and slaughtered on site in order to reduce the stress provoked during transportation.	
CONAD	Not present in Spain	Percorso Qualità Conad	Controlled feeding; Good farming practices; Internal audit of the full supply chain; Full traceability; Labelling: breeds, age and category (veal, etc.).	

Source: our own elaboration on Sans et al. (2004).

The organisational mechanisms adopted by Carrefour group in Italy and Spain seem very similar. Probably, the market context of such countries, more similar compared to the French one, justified this behaviour.

In Spain also Auchan adopted a similar mechanism than Carrefour. As shown by Sans *et al*. (2004), these common strategic choices of both groups for their beef supply was not found in France. There, each retail group reacted differently to the same problem, the BSE crisis, partially because of the hard competition, stressing the different solutions applied. Whereas in Italy, Auchan-Sma for its product line "*Filiera Controllata*" (Controlled supply chain), has signed the interprofessional

[3] Audits are carried out by third part (independent body) and in-house inspections.

collaboration agreement with Interbev for JBE (*Jeune Bovin Export*) and BFE (*Broutard Français d'Exportation*) (Mora and Menozzi; 2005). Both specifications established the traceability rules to be applied throughout the supply chain and the information to be labelled on the beef exported. Moreover, the JBE specification guarantees the respect of breeding methods, such as vegetal feeding, animal welfare, etc., both for exported calves and beef. Interbev operates as an institutional actor in this agreement, defining the control plan and monitoring the traceability system throughout the supply chain. This different approach followed by Auchan can be explained, on the one hand, by the higher Spanish self-sufficiency ratio of consumption (consumption satisfied by internal gross production, which in Spain is about 100%) compared to the fairly low Italian one (in Italy only 65% of total beef consumption is covered by national production). On the other hand, the lower development of interprofessional agreements in the Italian beef supply chain, if compared to the Spanish and, especially, to the French one, can be seen as another explanation of the different retailer approach.

6. Conclusions and discussion

Consumer research is a key aspect to gain information on consumer attitudes towards traceability in order to provide them an adequate communication of existing and new traceability systems.

Traceability should be divulged not as a mere tool to provide more information but as a system to assess its veracity. Up to now, consumer complains about incomprehensibility of provided information claiming for more clearance and transparent information and clearly written. Results of the focus groups conducted in Spain and Italy, shown that for all participants the difficulty to read labels lead to feel uncomfortable with beef traceability. In the case of beef meat, the voluntary labelling specifications have to be revised and approved by the competent authority in order to guarantee consumers against communications becoming dull, running the risk of making the information "cryptic" and thus incomprehensible.

Several beef quality attributes emerged from the focus groups analysis, often corresponding to conclusions extracted from previous researches on consumer perception of beef quality and safety. Country of origin, price and expiry date are the most quoted quality attributes in both countries, even with some cross-cultural differences. Price seems more important for Spanish participants, whereas trust feeling in shops and shopkeepers is strong in both countries.

Focusing on the topic of this paper, it is important to note that traceability perception differ across the two observed countries. Italians perceive traceability as adequate to guarantee origin and authenticity of traditional products mainly. It is believed to be a good information provision system to assess quality of food products. In Spain, terms such as origin, location, control and pursuit of the product were mostly mentioned in relation to traceability but as difference of Italian perception, Spanish refer to traceability as a health and food safety guarantee, mainly valuable to avoid food risks.

When asked to rank different beef product pictures according to their different level of traceability, Italian participants tended to identify a good traced product on the basis of the detailed labelled information, such as the presence of an animal identification number, the indication of the specific farm and slaughterhouse, and the production method information. Spanish participants inferred traceability information especially from the origin of the product. Even if they didn't find many differences across the displayed pictures, they generally preferred the national products compared to the foreign one. Despite its limitations, participants inclined towards labelling as traceability information support system for fresh beef meat, due to their appreciable fear for other proposed more-advanced information supports.

Retailers' strategies developed in Spain and Italy after BSE crisis have largely responded to the consumers requests as shown in this research, especially when accompanied to voluntary labelling and traceability schemes. This can be interpreted as a lesson learnt after 2001 beef consumption drop; on the other hand, the retailers communication may have somehow influenced the consumers' perception of beef quality and safety. If it was the case, what retailers offer is exactly what consumers perceive to be important; the strong trust feeling in retailers emerged especially in Italy seems to confirm this hypothesis. However this qualitative research cannot answer to a similar question and further quantitative analysis can thus be performed.

Nowadays, as emerged from the focus groups, price is becoming more and more important in the product choice at the point of sales. Other studies have shown that the valorisation strategies performed by Italian retailers for beef sold with private label and voluntary labelled information require an extra-price to be paid of about 10-12% (Menozzi; 2006). Thus, the future success of these strategies will also depends on the willingness of consumers to continue to pay this premium price for quality certified beef.

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8. References