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Traceability: European consumers' perceptions regarding its definition, expectations and differences by product types and importance of label schemes

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Abstract: Given the heterogeneity of European consumers it is not unsurprising that they have different perceptions and expectations regarding (but also understanding thereof) 'traceability'. A large number of individuals may not even have a memory anchor for the concept. Consumers may also perceive traceability differently among different product types. The present study is based upon focus groups analysis of 12 countries across Europe. It presents an explanation of traceability's understanding by European consumers. It also presents consumer's expectations towards traceability and its differences according to different product types.

Keywords: Focus groups; Traceability; Cross-national; Perceptions; Food products; Labels

1. Introduction

Recent food fraud and food scare incidents revealed the need for assuring the origin and authenticity of food products. As such, consumers have become sceptical and confidence towards food production methods and furthermore label information has been lost. Previous research has shown that consumer confidence will be re-established if information on food products can be tracked through the supply chain back to the farm and place of origin. Hence, information about the origin and production process history of food have become part of strategies used by food companies and retail chains (Wood, 2002). Furthermore, the European Union (EU) aiming towards this aspect issued regulations with respect to food traceability (EEC Reg. 178/2002). The regulation took effect since January 2005, thus food companies are obliged to keep track of information about their food products.

Many definitions have been provided in the current literature about traceability with two general definitions dominating (ISO definition and EU definition). ISO defines traceability as "the ability to trace the history, application and location of that which is under consideration", and notes that "when considering a product, traceability can relate to the origin of materials and parts, the process history, and the distribution and location of the product after delivery". On the other hand, EU Regulation is less extensive approaching traceability from the viewpoint of the ability to trace and track the production history of food and defining it as "the ability to trace and follow a food, feed, food-producing animal or substance intended to be, or expected to be incorporated into a food or feed, through all stages of production, processing and distribution".

Traceability as a term is very difficult to be defined and understood by consumers. Researchers have tried to give a broad description to consumers focusing mostly on the outcome that traceability provides. Researchers such as Hobbs et al. (2005) and Dickinson and Bailey (2002) describe traceability as "identity preservation" and as being associated to quality and safety assurance schemes. Gellynck and Verbeke (2001) defined traceability from the viewpoint of proving information to consumers. Wilson and Clarke (1998) defined traceability as the information necessary to describe the production history of a food crop and any subsequent transformations or processes that the crop might undergo on its journey from the grower to the consumer's plate. Finally, other researchers described traceability as a system able to identify a product and trace its movement through its processing stages till the final consumer (Timon & O'Reilly, 1998; Opara & Mazaud, 2001).

The various definitions and different aspects of traceability indicate the complexity of identifying what precisely traceability is. As previous studies may have focused on different aspects of traceability it will

be useful to mention that in this study traceability is defined as the ability to provide additional information with respect to the origin and the production process of food products.

2. Consumer expectations towards traceability

According to Roos et al. (2004) not enough studies have been conducted on traceability. Most of the studies so far have covered the issue of traceability from the technological point of view rather than consumer's. Gellynck and Verbeke (2001) stated that traceability as a term is still recent and moreover, for consumers is a very complex word difficult to be perceived (Giraud & Amblard, 2003). In addition, when traceability is perceived as a system it is rather complicated for consumers to understand its abilities and furthermore its demerits.

The word traceability does not mean the same to all consumers (Gauthier, 2005), which they associate it more to the origin and the production process and less with labelling (Giraud and Amblard, 2003). Traceability systems are viewed as an indispensable tool assuring product safety and implementing quality standards (Verbeke, 2001). Traceability, in the absence of quality verification, is of limited value to individual consumers and for this reason bundling traceability with quality assurances has the potential to deliver more value (Hobbs et al., 2005; Verbeke & Ward, 2005; Bernues, Olaizola & Corcoran, 2003). However, traceability does not necessarily denote food safety or quality but it is good tool to assure both.

According to Verbeke (2001) it is through traceability that the consumers' needs for credible and reliable information are fulfilled. Consumers demand as much traceability information as they can get and especially without additional costs (Rutherford, 2002). However, what is rather important is to identify what type of information and how this information should be provided to them (Roos et al., 2004). Hastein et al. (2001) argued that it has not been proved whether traceability information is of interest for consumers and whether such information could be provided through means of labelling schemes.

Traceability information may vary according to product types, indicating that it is product specific. Most of the studies so far have studied traceability focused in the case of meat (Hobbs et al., 2005; Verbeke & Ward, 2005; Dickinson & Bailey, 2002; Bernues, Olaizola & Corcoran, 2003; Giraud & Amblard, 2003). Consumers seem not to value traceability information per se (Hobbs et al., 2005; Verbeke & Ward, 2005) and if provided alone does little to reduce consumer information asymmetry with respect to credence quality attributes (Hobbs et al., 2005). Only if bundling traceability with quality assurances has the potential to deliver more value (Hobbs et al., 2005; Bernues, Olaizola & Corcoran, 2003).

In the case of meat, Bernues, Olaizola & Corcoran (2003), who compared demanded traceability information between lamb and beef, proved that beef consumers demanded more traceability information and this information in conjunction with quality assurances was of higher importance than information on nutrition and time of maturation. In addition, Dickinson and Bailey (2002) found that willingness to pay for knowledge about animal treatment and additional food safety assurances is higher in beef than in pork.

3. Method

The objective of this study was to use a qualitative approach to identify consumer perceptions and their expectations towards food traceability. Given that the research is exploratory in nature, it was decided not to impose a theoretical model or framework on the data collection and analysis. The intention was not to test a particular theoretical perspective, but to examine a relatively under-researched area and to begin a process of developing a model of the factors driving consumer perceptions towards food traceability.

The present study utilizes a focus group methodology to examine consumer differences in perceptions about traceability across different European countries, their expectations and differences across different product types. Focus groups generally involve carefully planned discussions with seven to ten people, developed to elicit participants' range of opinions across several groups (Krueger and Casey, 2000; Edmunds, 1999). The method presents a more natural environment than that of an individual interview because participants are influencing and influenced by others "just as they are in life" (Krueger and Casey, 2000). In addition, because of their participant-defined nature, focus groups are exploratory and open to themes not anticipated by the researcher (Krueger, 1994; Calder, 1977).

In July 2005, pilot exploratory focus groups were conducted with consumers in six countries (Greece, Spain, Italy, France, Netherlands and Germany) to gain an understanding of consumer perceptions on

traceability. Based on the results of the exploratory study the most prominent items were revealed, improving the design of the main study. In addition, a code list was generated with items referring to salient key concepts related to traceability.

3.1. Procedures

The main focus group discussions were held according to a protocol to facilitate semi-structured data collection. In total four protocol guides were illustrated. The first guide was oriented on labelling, origin and quality labels, the second on traceability definition, perception and expectations, the third on food traceability systems and the fourth was a combination of the latter two protocols. The first three focus groups took place in France, Italy, Germany, Greece, Netherlands and Spain and the fourth in Slovenia, Malta, Hungary, Poland, Norway and Lithuania. All focus groups guides were translated to the respective language of each country.

Firstly, participants were asked to introduce themselves to other members of the focus groups. A warm up discussion followed with questions concerning purchase of food products. Key questions focused on issues referring to traceability definition, consumer perceptions about traceability and their expectations about “ability to trace” food products. In the next phase of the discussion, participants were presented with sample food products in order the levels of traceability to be identified (second and third protocol guides). In the third and fourth protocol guides, systems supporting traceability were presented and participants were asked about their perceptions about those systems and their willingness to pay for each system.

The focus groups discussion lasted approximately from 1.5 to 2 hours. They were moderated by members of the research team and in the case of the countries with the third protocol guide, by a representative of a market research agency. Following the discussion, each participant completed a background questionnaire and received a small present for their participation. The focus groups sessions were audio-taped and transcribed verbatim to ensure systematic analysis of focus group discussions. All focus groups discussions were translated into English before further analysis was conducted. The person responsible for the project in each of the 12 countries provided an English summary of the focus groups discussions in that country from which this paper was drafted and agreed upon.

3.2. Participants

A total of 210 consumers participated in 24 focus groups conducted in twelve countries across Europe. Three focus groups were conducted in Greece (n=28), France (n=20), Spain (n=25), Germany (n=30), Netherlands (n=24) and Italy (n=24). One focus group was conducted in the rest six countries, naming Malta (n=8), Slovenia (n=10), Hungary (n=8), Poland (n=8), Norway (n=8) and Lithuania (n=10). Participants were recruited using convenience sampling methods, although efforts were made to have balance in their socio-demographics.

Table 1 presents the consumer participants’ characteristics. The socio-demographic data reflected a social bias, but as the main unit of analysis is the pool of arguments and not individual characteristics, such bias can be tolerated. Some 61% of the participants were female and most of them aged between 18 and 39 years. Participants were generally average to well-educated, with the majority having completed at least a lower level of secondary education. Finally, most of the participants were employed in paid work and with a monthly wage varying in all categories indicating the differences of wages across countries.

4. Results

4.1. Definition of traceability

Results showed that traceability as a term is very confusing to consumers and its definition responses varied across countries. The majority of the participants were not familiar with the term “traceability”. In some countries participants, such as in France, Germany, Hungary, Italy, Malta, Slovenia and Spain, participants had a quite good knowledge of what traceability is and were able to give a fairly accurate definition of the term. In other counties, like Greece, Lithuania, Norway, Poland and the Netherlands, “traceability” was a vague concept with participants being unable to provide an approximate description of the term and most of the times it was even unknown. Hence some participants like Greeks were able to

give an approximate definition based on the terminology of the word without even having any memory anchor of the term.

It is important to mention that in some countries there was confusion due to the different ways of translation of the term “traceability” to irrespective languages. When participants were asked to write down what traceability meant for them some general word associations came up (Table 2). In almost every country traceability was mainly linked to the origin and in general food product information (i.e. expiration date, ingredients). They also associated it to the production process and to the ability to track a food product back to production. However, almost none of the participants were able to define traceability as a system able to provide such information, thus proving the complexity of understanding the term of traceability.

According to participants, quality was another factor emerged which consumers associated to traceability. Participants in France, Lithuania and Poland seemed to confuse traceability with quality as some of them described traceability as the quality of the product. On the other hand, participants in all countries did not associate the term to product safety. However, when it comes to utility that traceability provides then safety is a very important emerging factor. Other essential factors that came forward are that traceability was associated to reliability and transparency of information and food control.

4.2. Perceptions and expectations towards food traceability

Perceptions about the utility perceived by traceability varied across countries (Table 2). In most of the studied countries participants were able to identify the benefits of traceability, whereas in some cases as in Poland or in Lithuania, participants could not identify any significant benefits. Hence, some of them considered it as another marketing tool used from companies. Not significant correlations on consumers expectations existed among countries neither among expectations themselves (Table 3 and 4).

Participants valued traceability as the identification of the origin of the product. Additional information about the product was also mentioned having relation to what they buy. Traceability was also perceived as reassurance of food quality and safety and at the same time as a tool to control the production process. Finally, traceability can be taken in as a tool to trace and track food products in cases of food recalls.

Groups in almost all countries agreed that the utility of traceability was to identify the origin of a food product. It was considered as a system able to give more precise information about the origin of food products. Hence, in some countries like in Greece and Poland, transparency of such information was under consideration. The notion of origin was considered as a reassuring attribute and in some cases like in French and German consumers it was connected to emotional values. In other cases, to know the specific origin of a product enhanced the confidence of consumers towards specific food products.

Traceability is been associated with added information about the product per se. Participants in Italy, Greece, France, Netherlands, Lithuania and Slovenia declared to pay attention on product information provided in their products’ labels. In most groups participants demanded for more information on food products and argued that companies were obliged to do so. However, a paradox existed between type and depth of information provided and the fact that consumers might not take it into account if product was overload with much information due to that information is not easily understandable by consumers and time required to do so is prohibitive. However, consumers argued that such information should be available and it would be helpful them to have access to it.

Groups in Spain and Norway argued that traceability was more beneficial for producers and controllers. For food businesses it could benefit them in cases of food recalls ensuring the confidence towards their products. As long as consumers did not think there was a problem, they did not feel the urgent need for traceability especially if this entailed higher prices. However, in Polish groups, even if considered it praiseworthy, they believed that the ability to withdraw potentially dangerous batches of products from points of sale was not particularly important for them.

In Greek and Italian groups participants replied that traceability could guarantee the quality of food products, whereas in some cases as a tool to improve it. Most participants acknowledged that, at least at present, traceability was needed precisely because such guarantees of quality were not readily available. In Italian groups participants mentioned that they wouldn’t worry about traceability if food companies were able to provide quality products produced with the old traditional ways. This translated itself into a related suggestion by many consumers that, if quality seals that guaranteed that the production/distribution process had been controlled were more prevalent, there would be no need for traceability.

Another benefit associated to traceability that emerged in groups in Spain, Netherlands, Italy and Hungary was food safety reassurance. Traceability was considered as a tool to guarantee food safety and this was mainly mentioned in conjunction with risk assessment and health risk related behaviour. Participants mostly referred to food hazards and crises that have affected their respective country food systems and agreed that traceability could therefore reassure product withdrawal in cases of such crises. In Hungary traceability was perceived as a tool that could enhance their confidence that a food product was appropriate to consume.

Some participants in Spain and Poland believed that traceability will allow improved controlling of the production process of food products, thus enhancing their quality. Spanish participants, viewed control as being able to retrieve rapidly food products in case of a food recall. In addition, they affirmed that traceability also means a benefit for the companies, in order to facilitate the control of their products improving their image. However, participants in Polish groups had negative opinions and concerned on the quality of control.

A number of participants in France, Spain and Germany noted that hygiene of food products and assurance of healthy food can be provided through traceability. That is, traceability could become an important potential strategy for reducing food-based health risk and assuring safety of products. Though they rarely used the term, most participants were concerned with protection towards risks.

In groups in Spain and Italy traceability was conceived as a tool to differentiate food products. For instance, participants in Spain argued that it could be used to differentiate organic products from conventional food products. In Italy they considered it as being a buying criterion. Finally, for some of the participants traceability was viewed as a marketing tool that could enable producers to improve the image of food products, assuring quality and safety at the same time.

In almost all groups participants argued as being satisfied with the current traceability systems employed in their countries from their respective food businesses. However, participants did not expect to have confidence in other countries' systems. Some exceptions were found in groups in Spain, Greece, Hungary and Malta. In those cases participants seemed to share the expectations that traceability as information was not transparent enough. In other cases, as in Spain, participants were supposed to prefer products with European origin comparing to theirs. In Hungary, participants expressed their concern on their national bodies that were not able to reassure them especially in cases of emergency.

In countries which are famous for their culinary traditions such as in France, participants considered trusting information on their food products and acknowledged their quality guarantee. However, participants judged that traceability per se is different than quality. Group participants in Greece and Italy regarded foreign food products as providing more information comparing to domestic ones and that sometimes were of higher quality. Nevertheless, they preferred buying domestic products comparing to foreign ones with some exceptions on very well known brands or traditional food products.

In almost all groups participants wondered whether for imported products other countries have the same norms/standards and the same hygienic constraints as their own countries. However, they acknowledged that European Unions' countries employed the same rules regarding control and traceability information. Dutch participants considered that traceability was less well organized outside the European Union (apart from USA and Canada). In Malta, participants judged that the progress occurring in their country was due to their accession in European Union. Finally, it was assumed in most of the groups that food products coming from European Union countries provided more confidence than from third party countries.

Another issue emerged related to the raw materials from processed food products. These were considered as possibly originating from other countries. In groups in Lithuania they thought about that it was easier to trace domestic products. When it came to products produced with imported raw materials then traceability became more complicated. Additionally, information provided through traceability was thought to be under consideration. This indicated the need that standards supporting traceability had to become global, implemented across all countries, and active at all stages of production.

4.3. Information and traceability by product types

Participants in countries in which the second protocol guide was employed were shown different product samples of meat and honey and were asked to judge upon their level of traceability that each product was supposed to have and rank them irrespectively. In Table 5 results based on this task can be found for each country.

The Netherlands

Honey

Information that participants in Netherlands considered as important was whether honey was from bees or nectar, the type of plant/tree it came from and origin: *“Whether it says bee honey or flower honey [nectar], that is the most important thing”*; *“...I would like to see whether it is real bee honey (i.e. not nectar) and from which plant or tree it originates...”*; *“The country, in any case the country”*. Production method was also important: *“Whether it has been slung, or whether it was dripped”*; *“They way in which it was extracted”*. Another important criterion was the convenience of packaging and the appearance of jar: *“Yes, purely the convenience of the packaging”*. Finally, price was important only for participants who buy more frequently: *“I hardly ever buy honey, thus when I do buy it, I can just as easily take the most expensive one”* and another participant argued: *“Yes, when you buy it only occasionally...But in my home it is used very much”*.

The honey which was believed to provide more traceability information was the organic production. Participants thought that the specific product was more traceable: *“...This one has the pretension to have the ECO certification label, I do want to be able to check that. That should be traceable in that case...”*. The excellent quality honey was a specific claim for the type of flower the honey was produced from and therefore traceability was considered high: *“...Yes, that mountain flower honey, that attracts me...”*. In the case of the strong brand participants considered to be provided with traceability information despite the fact that they stated that indication about the origin should be clear: *“...And with that mountain blossom (i.e. the picture on the label) you could say from the Alps, or I don’t know where and with those and those flowers. That is also important by the way. Thus, that should be indicated in any case...”*.

Meat

Information such as origin, type of animal, place of slaughter; place of raising and whether it was frozen was very important for Dutch participants: *“...But whether that cow was slaughtered last week or has been lying in a deep freeze storage in Argentina... that cannot be traced”*; *“Actually they are saying minced beef, but it could be from a ox, you have to know from what”*; *“Yes, but as soon as it is defrosted, they call it fresh, while it has been lying in the freezer for that long. In that case it is not called fresh, and when it is defrosted it all of a sudden is called fresh”*; *“I just find it nicer to get fresh meat”*.

Most participants stated preferences buying from the butcher: *“I love to eat meat, so I now I buy almost all my meat at the Keurslager [specialist butcher], or at an organic butchers”*. However, for packaged meat they stated to need information about the ingredients: *“I am curious about other ingredients it contains. Now it says ingredients 100% beef”*, additives (like water and herbs): *“But you know beforehand that it is not 100% beef, because it is processed and it has been injected with water and herbs, so...”* and on whether they used gas in the packaging or sulphate to enhance the red colour: *“Whether there is sulphite, or what type of gas they used to conserve it in the packaging”*; *“Well, I don’t want this one (sulphate) anymore, this one...”*.

The meat that they believed to provide more traceability information was that from the butcher’s, as they were able to see the product they buy and felt more convenient: *“Yes. I prefer to go to the butchers, because in that case I can see which piece he cuts. And if I don’t like it, I can say, oh, couldn’t cut a piece a bit further, because that piece doesn’t look so good. And I cannot do that at the AH”*. However, there were also different opinions expressed: *“...If you were to go to the butchers, yes, I don’t know what he is going to cut... from which...”*. The special quality product was also believed to provide more traceability information, as they stated that they were able to give information about the origin: *“...because that is also, yes, that also already gives information about the origin, what can be found on those barcodes...”* or just from convenience towards the brand: *“When you buy a piece of steak, in that case it is better to look for a good piece of meat ... in that case you are sure that you have a reasonable piece of beef”*. Finally, for some of the participants the organic product was ranked first, as they needed such information to be indicated: *“That is from an own chain and there you often hear good things... it is reasonably well indicated, on the packaging”*.

Germany

Honey

In German groups participants paid attention to the price of honey: *“I look at prices”* and some times its consistence: *“Also the price. Even I had wished to have this one because it is more liquid”*. Origin was

also important and linked to the quality of the honey: *“If it is a German product it means to me good quality”*; *“Yes, e.g. were the bee colony is living. Because, if there are genetically modified plants near the bee hive, you wouldn’t get good honey”*. Taste was also vital: *“If it doesn’t taste good to me”*, its feed: *“I am not sure if they all feed with sugar water”* and additives: *“That there aren’t any chemicals in it, no pesticides or things like that...”*. The appearance of the jar was also important for their purchase decisions: *“If the packing looks nicer. But otherwise...”*. Hence, more information should be provided through packaging: *“There you need such a glass and such a packing unit so that everything is written on”* or had additional features such as being recycled: *“I would take this one because I know the glass. It is a recycling glass that can be given back to the beekeeper”*.

The product which was most preferred and believed to provide more additional traceability information was a very well known regional honey which gave an identification number: *“...And I have supposed that their traceability is rather fine because of this number”* and the name of the bee keeper: *“... because it is great company or because it is from the beekeeper association”*. Negative opinions about rejected products were based upon the low level of information provided: *“The number 3 is at least traceable for me. Because it has partly been from South America and Central America and also European... but there is nothing else written on, just the date and a quality control number. This one I appraise to be the worst”*; *“Because there is just written on: «mixture from non European countries» and I don’t know which countries they do speak of”* and their lack giving an identification number: *“And all the other products have written on a quality control number, too. And I haven’t seen it at this organic honey”*.

Meat

Origin of meat was very important for German participants who seemed to prefer domestic products: *“This one: produced and slaughtered in Argentina, but at the other products I haven’t seen that information”*; *“Well, if it comes from the closer area I would prefer to buy it. But otherwise...”*. Appearance of the meat referring to the colour and its fat content and freshness were also quoted: *“Country of origin ... colour, fat content”*; *“As fresh as possible. Immediately from the producer”*. The type of packaging seemed affecting their choices: *“For me this kind of packing seems utterly cheap. Less quality because it is welded in plastic”*; *“Actually the only important thing to me is how long it will keep well and when it has been packed in”*.

A regional meat sample was believed as being more traceable. Participants quoted that it provided clear information about the production process and its origin: *“Because on this product they write on: born, slaughtered and so on. Well, I mean, everything is written on clearly”*; *“It is written on: «from German slaughter» and «born in Germany» and so on”*. Moreover, an identification number was provided on the package: *“At least there is also a number. Then you can think that you are at least able to get information if you want to”*; *“...Because there is also written a number on it, a very long number. An «ID» number, therefore I have thought it has to be fine”*. Samples which did not provide any information about the origin were ranked last: *“There was nothing written on the packing or nothing was written on clearly”*; *“No country of origin”*; *“It is just written on: «German beef”*.

Spain

Honey

For participants in Spanish groups origin was the most important attribute that they were seeking in honey: *“When you see this at a glance, well, you see it is honey of La Alcarria, and you do not need anything else”*. They seemed to trust Denomination of Origin labels: *“...with the label of Denomination of Origin, I already trust myself the criteria of the Denomination of Origin and I believe that this label gives me enough information...”*. Another quoted criterion they paid attention to was the composition: *“...And it says multi-flowered honey. He must specify the flowers, or is that enough?”*; *“I would like to know what percentage of rosemary or eucalyptus or if it is multi-flower, what mixes does it have?”*.

Similar to their statements above the most preferred honey product was that with PDO designation. Participants agreed that the label of this PDO honey was the most convenient for them since information on the origin, name of producer and presence of a certification was clearly indicated: *“...between these four the only one which has the certificate, the denomination of origin is this first one; in the others they tell you, this one apart from being Catalan, it comes from diverse countries they do not have any traceability nor you know where they come from...”*; *“...has a very convenient label to read, very, very simple ...and I like the flavour because I know it”*; *“...it fulfils the legislation effective and it says that it is denomination of origin and is from the Alcarria, I entrust. I mean, that is traceability which I request, to*

be from, from where it puts that it is". The indication of producer's information also affected their choices: "...It has a good thing, and it is that it has a telephone of attention to the consumer". Participants attached the presence of a PDO to a more safe product: "...it seems that the one that gives me more safety...". In relation to remaining samples participants recognized as mistrust information the lack of indication of the specific origin: "...There is one that says that is from bee, which is already more interesting, but it does not specify absolutely anything, neither from where is nor anything...".

Meat

Spanish participants in the case of meat they stated paying attention more to expiration date, origin and the quality of the meat: "...Whenever I buy a product like this I always look to the best before date, and also the origin... but mainly the expiring date..."; "I also pay attention to the quality of the meat that I need, if it is for stakes or for another recipe..."; "...the expiring date and the quality of the meat; that is enough for me". They were also not price sensitive: "To be honest, the last information I look for is the price..."; "...either, a little more. I say that the price, well, I pay little attention, I do not know if I am paying more or I am paying less"

According to meat samples, participants did not perceive many differences regarding traceability: "Well, I do not see much difference in the traceability...". Since the information provided by the labels of the displayed samples was quite similar, they were not able to perceive any differences. Thus, their criteria were mainly based on their presentation and price: "...I have paid attention more to the presentation and the price...", origin and type of meat: "...it would take calf Galician because I think that, we like better because of the flavour, because the others..."; "...I have chosen the first year-old calf; eh, then the one from Galicia; later the one from Belgium; and last it has seemed this one, bad presentation and less information....".

France

Honey

In the French groups participants mentioned paying attention to the origin of honey, its kind of flowers and ingredients: "...I prefer French honey (all agree)"; "...the honey that I prefer is fir honey... this one comes from savage flowers"; "...apiarists are obliged to treat them... but they don't say with what!"; "...then, origin: Italy...it's not France. For the ingredients, there is only honey...so, it's very good. And there is the date (until 2007) and conditions of conservation"; "...in this case "made in France" can only mean "packed in France"". If a quality label existed then this was desirable: "It is certified by ECOCERT, it's a certain quality label". Other attributes they stated paying attention to were about its feed, expiration date and name and address of the apiarist: "yes... and I'm sure for them to have an important production, they give them antibiotics..."; "...the name and the address of the apiarist"; "I buy my honey... I have the name of the producer, his address..."

Participants ranged as first a strong brand sample that stated providing enough information in parallel with a web site: "they mention "to know everything about the origin and the taste of this honey, type its batch number on: www.lunedemiel.fr"; "... I think that it is a great idea that misses on lots of products"; "...also because we have on it: the origin, the type of flower, the packaging place... It has the most complete information". Some participants quoted that the regional honey product gave more information about the producer: "...it's a regional product, we have the address and the phone number of the producer...which is better than the Internet address". Other participants ranged as first the organic product which was certified and its region of origin was indicated even if it was produced in a foreign country. They considered this as transparent: "...I choose number 2 not because it is organic...because the labelling is written in a very clear way...we have all the explication: origin, flowers... it is certified by ECOCERT .. There is more information, it is more transparent"; "...they didn't hide anything...they put wild flowers honey, and Italy as origin ...because sometimes when it comes from a foreigner country, they don't mention it or they mention it with very small letters... here it's clear, ... the labelling is complete..."

Meat

In groups in France participants stated paying attention to the name and details about the producer: "...we would've liked to know the name of the producer...because I don't know what does "atelier" (= workshop) means...is it the workshop of slaughtering or..."; "if he is from the region". However, different opinions were also expressed: "me, I don't care about having the name of the producer..."; "...whoever he is... I will never go and see what he does on the field and how does he produce his meat!

But...anyway". Origin, place of birth and breeding were also important criteria: "...and concerning the breeding... there is nothing mentioned about it ...where it comes from?"; "Well, it would be good if we have the department, the place of production...". Information about the animal such as age, breeding were also quoted: "...what is more important is the race ... it's written also «young cattle» and it's «a race for meat»...this is really important for me...". Some participants agreed paying attention to the appearance of the meat: "...I look at the appearance of the meat, what piece of the animal is it...". Finally, type of packaging was also quoted in relation to certain ethical concerns or health: "...concerning the packaging...I would prefer if they put biodegradable packaging and to use less plastic ones"; "...apparently, there are some studies that said that certain elements of the plastic stay in our food ...so, it passes through our bodies especially in our reproduction systems".

French participants agreed that the regional meat sample provided more traceability information: "I say that number 1 is the best because I found lots of information on its label: very specified race, type (milk or meat), «young bovine»...usually they don't mention it...I didn't find this info on the other three"; "...and the important thing is that it is written meat race"; "plus...it is mentioned that it is born and raised in Auvergne". A strong branded meat sample was also ranked first: "I also ranked number 4 as first because it has the number of the livestock, the number of the cow"; "...they also explain the mode of packaging and they explain its advantages...it seemed well traced to me...we have all the elements: the race, the cow...".

Italy

Honey

Participants in Italian groups seemed paying attention to the origin, colour, place and date of collection as well as date of packaging: "The country is too vague, the area"; "I think the colour is one way of telling if it's good honey, and also by the fruit"; "The colour, well they probably put colouring in. I've heard such awful things about honey that I don't buy it any more!"; "I would like to see the place and the date of collection, as well as the date of bottling. These indicate seriousness".

The product that was believed to provide more traceability information was an organic product. They claimed providing adequate information comparing to the other products: "Two for me too, because there's more information than the others"; "It even says the month, it was collected in June"; "There's even a number on the jar".

Meat

The most important quoted attributes were price, colour and origin with a product "born, bred and slaughtered in Italy" being the most preferred: "I choose according to the price"; "The colour first of all"; "It says it was born and bred in Italy but it's vague... slaughtered where?"; "It doesn't say the farm where the animal comes from".

Italian participants ranged as first a product with a private label which had a GM free indication: "This one has a certificate of guarantee, good quality, it's Coop, and we know Coop cares about the consumer"; "No GM. It's the first thing I saw". Some of the participants argued that the organic product had more traceability information with more indications about the origin: "It identifies the actual individual animal. It was born in Austria. There's a code number, too"; "The other one says where it was born too".

Greece

Honey

Participants in Greek groups paid attention to the origin, composition (i.e. what is made of), expiration and production date, the colour and general appearance of honey. They also requested for additional information about the producer and some of them argued that a contact line would be advantageous: "The most important is where it comes from, where it is produced, and the fact that it is made of thyme. The date of expiry. It would also be good to include the date of production too. The phone numbers of the company, so that we can call them in case there is something we don't like"; "First, the most important is that it is made of thyme and second where it comes from"; "Who produces it... it states that it is made of thyme and flowers..."; "The color, I like the color..."; "And the fact that it doesn't granulate. It remains the same from the beginning until the end"; "I always check that it is made of thyme or of pine. I also check how thick it is"; "But this one doesn't state the date of production"; "There is no date of production on it, just date of expiry"

Packaging was also important as in a jar made of glass they were able to see the honey and in other cases they considered it more attractive: *“Yes, I pay attention to it [packaging]”; “Packaging in general. The fact that it has this little sheet, the golden one and the little vase... all that...”; “It is also the packaging that makes it look like a vase of our grandmother; this is something too... But this might also make you think that it is hand-made”; “And its packaging, the fact that it is glass and you can see it”.*

When participants were asked to rank the samples this was based mostly on the origin and the brand. For this reason they placed first a commercial product with strong brand: *“I have ranked the Commercial honey first, because it gave me the impression of offering more information than the other ones”; “I have ranked the Commercial honey first. I know that in Attica there is a variety of flowers, there are 1500 different kinds of flowers. You don’t find this anywhere else in the world. This is why I have ranked it first. It is a matter of origin”; “...I have ranked the Commercial honey first, because it talks about consistency, responsibility and guarantee among others”.* For some participants the regional product was considered providing more information about the origin and its ingredients: *“I have ranked the Kriti honey first, because it comes from Crete and it is made of thyme”.* Moreover, the package was made from glass thus participants were able to see the product and this was more convenient for them: *“I have ranked the Kriti honey first, because compared to the Commercial honey, I can see it and this plays a significant role”; “Yes, it looks good, it doesn’t seem to be granulated, while I cannot see the Commercial honey, which I have ranked second. I also like its package”; “Anyway, I have ranked the Kriti honey first in comparison with the Commercial honey, because I can see it. Packaging plays a significant role. It seems to be more regional”.*

Meat

In the case of meat, Greek participants seemed to focus on information about the origin, colour and taste: *“First of all, we are talking about the country of origin. It might be from abroad and they brought it here when it was young and now they name it Greek”; “Well, colour is also important in the meat”; “I want it to be Greek. I also want to buy a good piece of meat that is red”; “Taste is the ultimate criterion. If you cook it, you eat it and you like it”.* They were also interested in information about the company: *“...for example which company does the packaging”; “I am more interested in manufacturing...”; “...Or to know that the meat comes from five or more farms that we know do a good job”.*

The ranking between samples was difficult for participants, as they stated that almost all provided the same information: *“In this case, more or less all four products offered information”.* Even if being hard, most of the participants selected the organic product sample: *“I have ranked the organic product first, because the date of slaughter and some other information are stated, which I actually don’t even look at”; “It is organic, which says something about its quality and the health of the animal”.* Some others noted that samples with private label were certified with ISO and ranked them as first: *“I have ranked the Private Label products first, because they were certified by ISO and HACCP”.*

4.4. Information and traceability by product types - Summary

There was a broad-spectrum consensus across all groups that the level of traceability differed according to the type of products. Some generic information seeking in all products types was generally agreed across all countries such as origin, price and expiration date. Most participants felt that they usually got the information they needed about the products they bought. Dutch participants found difficult to decide how detailed the information is needed to be. Especially in the case of processed food they did not know how much information it should provide.

In the case of meat, participants in all countries seemed to perceive that regional meat provided more traceability information. However, this might be due to specific preferences. Strong brand samples, were not considered providing high levels of “ability to trace”. In the case of honey, French and Greek participants considered that a strong brand provided additional traceability information, whereas in other groups such as in Germany, Italy and Spain, regional products were considered as such. It was interesting that groups in France and Germany considered that organic honey was not providing more traceability information.

For products that use specific methods of production, such as organic products, participants believed that they provided more traceability information than conventional ones. Dutch participants stated the need for additional information in meat. German participants believed that when traditional cooking methods were employed then additional traceability information was provided by such products.

4.5. Importance of labelling schemes

In all countries participants wished to find additional information about the food products they buy. However, in Netherlands participants doubted on whether they would use such information. Participants stated that they wanted information to be easily available, easily found and easily accessible. Traceability information could be acquired on the product label, but it was generally argued that it would be time consuming. In all groups participants agreed that they did not want to spend much time finding information about their food products, as shopping is already a time consuming task. The majority seemed to prefer a more visual symbol, a hallmark, as a label for traceability, instead of a code. The respondents want to easily see that a product was traceable and they wanted to easily understand the label.

Labelling schemes such as organic labels, PDO (Protected Designation of Origin) labels and seals indicating the origin or quality seals were believed to deliver more traceability information about food products, especially in countries where consumers are familiar with such schemes. However, variations existed across different food products as already mentioned before. In groups in Norway participants who were familiar with quality seals, argued that traceability per se did not offer any additional value for consumers, especially to pay higher, unless the product was bundled with quality guarantees such as a seal or a logo. In Greece and Malta participants argued the need of an authority which would be able to control the reliability of traceability information.

5. Discussion

To our knowledge, the results of the research presented here represented the first systematic analysis of differences in perceptions of traceability between consumers in different countries and across different product types. The focus groups were exploratory in nature and the results should be interpreted with caution, keeping in mind the limitations of this qualitative method. Nonetheless, some important inferences can be drawn.

Almost five years after the introduction of European regulation, traceability as a term is still a buzz word for consumers. Most of participants could not provide an exact definition of the term and in other cases were unable to describe it. Moreover, consumers were not able to understand the meaning of traceability and most of them did not have even a memory anchor for the concept. However, when they were provided with more information about it and started getting familiar with its use, they positively valued its implementation in the food supply chain. This states the need for public authorities and food companies to push towards the communication of traceability towards consumers, something that has not yet been done extensively.

Expectations and also understanding of traceability differed across countries. In almost all countries participants valued traceability as being able to identify the origin of the product in particular when it is in relation to specific food preferences and cases of food recalls. Traceability could also reassure food quality and safety and at the same time used as a tool to control the production process. Similar to findings from previous studies (Hobbs et al., 2005; Bernues, Olaizola & Corcoran, 2003) traceability alone is not of any value for consumers to at least pay a higher price. The quality of a product can not be guaranteed through traceability but when bundled with such quality guarantees then it seems to add more value.

It should be noted that during, or just before the period of focus groups, some of the studied countries knew minced beef withdrawal campaign and chicken meat infection affair (i.e. bird flu). In the case of bird flu all the participants were aware about first insights of the disease. However, even when chicken was used as an example, the discussion about food scares never reached a concern. Participants did not seem to have additional demand for traceability information due to the specific food crisis.

In summary, results from our study provided a useful first glance at the range of consumer expectations towards traceability. It has to be stressed that focus groups which were based on small and not representative samples should not be used as the only empirical evidence to support conclusions (Morgan, 1997). Therefore, results from this study were used to inform the development of a quantitative survey, which will be reported in a future article.

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References

- Bernues, A., Olaizola, A., Corcoran, K. (2003), “Labelling information demanded by European consumers and relationships with purchasing motives, quality and safety of meat”, *Meat Science*, Vol.65, pp.1095-1106.
- Calder, B. J. (1977), “Focus groups and the nature of qualitative marketing research”, *Journal of Marketing Research*, Vol. XVI(August), pp. 353-364.
- Dickinson, D. L., Bailey, D. (2002), “Meat traceability: are U.S. consumers willing to pay for it?”, *Journal of Agricultural and Resource Economics*, Vol. 27, pp. 348-364.
- Edmunds, H. (1999), *The Focus Group Research Handbook*, NTC Business Books in Conjunction with the American Marketing Association, Chicago.
- Gauthier, M. (2005). Les Nouvelles Exigences Internationales en Terme de Traçabilité et de Contrôles de Toutes les Filières. *In Food 2005 Conference, Paris, France, 24 March.*
- Gellynck, X., Verbeke, W. (2001), “Consumer perception of traceability in the meat chain”, *Agrarwirtschaft*, Vol. 50, pp. 368–374.
- Giraud, G., Amblard, C. (2003), “What traceability mean for beef meat consumer” *Food Science*, Vol 23, pp. 40-46.
- Hastein, T., Hill, B. J., Berthe, F., Lightner, D.V. (2001), “Traceability of aquatic animals” *Revue Scientifique et Technique Office International des Epizooties*, Vol 20, pp. 564-583.
- Hobbs, J. E., Bailey, D., Dickinson, D. L., Haghiri, M. (2005), “Traceability in the Canadian red meat sector: Do consumers care?”, *Canadian Journal of Agricultural Economics*, Vol. 53, pp. 47-65.
- ISO (International Organization for Standardization) (2000), *Quality Management Systems - Fundamentals and Vocabulary*, European Standard (EN ISO 9000:2000, Point 3.5.4), Committee for Standardisation, Brussels, Belgium.
- Krueger, R. A. (1994), *Focus Groups*, Thousand oaks, California.
- Krueger, R. A., Casey M. A. (2000), *Focus Groups: A Practical Guide for Applied Research*, Sage Publications, California.
- Morgan, D. L. (1997), *Focus Groups as Qualitative Research*, Sage Publications, London.
- Opara, L. U., Mazaud, F. (2001), “Food traceability from field to plate”, *Outlook on Agriculture*, Vol. 30, pp. 239-47.
- Regulation (EC) 178 (2002), “Laying down the general principles and requirements of food law, establishing the European Food Safety Authority and laying down procedures in matters of food safety”, *Official Journal of the European Communities*, L31/1-L31/24.
- Roos, G., Dulsrud, A., Norberg, H. M. (2004), The Meaning of Information on Traceability of Fish for Establishment of Consumer Trust, *In 2nd International Seminar on Political Consumerism*, Oslo Norway, pp. 396-415.
- Rutherford, S. (2002), Traceability – What do Consumers Want? *Paper presented at Saskatchewan Pulse Growers’ Pulse Days 2002, Saskatoon Canada, 7-8 January.*
- Timon, D., O’Reilly, S. (1998), An Evaluation of Traceability Systems Along the Irish Beef Chain, *In C. Viau ed. Long-term Prospects for the Beef Industry, INRA, Ivry-sur-Seine*, pp. 219-225.
- Verbeke, W. (2001), “The emerging role of traceability and information in demand-oriented livestock production”, *Outlook on Agriculture*, Vol. 30, pp. 249-255.
- Verbeke, W., Ward, R. W. (2005), “Consumer interest in information cues denoting quality, traceability and origin: An application of ordered probit models to beef labels”, *Food Quality and Preference*, In Press: pp. 15.
- Wilson, N., Clarke, W. (1998), “Food safety and traceability in the agricultural supply chain: using the internet to deliver traceability”, *Supply Chain Management*, Vol. 3, pp. 127-133.
- Wood, L. (2002), “Feed and food safety in the farmed Atlantic salmon industry”, *Geography*, Vol. 87, pp. 160-163.

Table 1. Consumer focus groups demographics

	Country											
	France (N=28)	Greece (N=27)	Spain (N=25)	Germany (N=30)	Netherlands (N=24)	Italy (N=24)	Malta (N=8)	Slovenia (N=10)	Hungary (N=8)	Poland (N=8)	Norway (N=8)	Lithuania (N=10)
<i>Gender</i>												
Male	8	14	6	8	10	10	4	6	4	4	3	4
Female	20	13	19	22	14	14	4	4	4	4	5	6
<i>Age</i>												
18 - 39	8	14	7	22	11	10	3	3	4	4	4	4
40 - 59	14	13	8	7	10	10	3	2	3	2	2	4
≥ 60	6	0	10	1	3	4	2	5	1	2	2	2
<i>Education</i>												
Primary	1	0	1	0	1	3	0	0	2	0	0	0
Lower secondary	5	0	0	4	6	3	2	0	3	1	0	0
Secondary	7	10	4	5	7	6	2	4	2	3	3	3
Post-secondary	5	6	3	2	6	1	1	0	1	1	0	4
First stage of tertiary	4	11	17	9	4	1	1	5	0	1	5	2
Second stage of tertiary	5	0	0	10	0	10	2	1	0	2	0	1
<i>Personal situation</i>												
In education	3	5	2	9	4	1	1	2	1	0	2	2
Unemployed	4	2	2	5	1	6	0	0	0	0	0	0
Retired	7	0	9	0	3	4	2	2	2	1	0	2
Housework	2	3	5	3	5	2	2	1	0	0	0	1
In paid work	11	17	7	11	11	11	3	4	4	7	6	5
Other	1	0	0	2	0	0	0	1	0	0	0	0
<i>Monthly household income</i>												
< 900	2	4	2	13	7	2	2	7	2	2	0	3
900 - 1499	4	12	2	8	8	4	3	1	2	0	0	3
1500 - 2249	7	7	3	3	4	7	2	1	1	5	2	2
2250 - 3000	8	1	5	2	4	8	0	1	0	1	3	0
> 3000	3	0	6	0	1	3	1	0	0	0	3	0
I don't know	3	0	6	2	0	3	0	0	1	0	0	1
Confidential	1	3	1	2	0	1	0	0	2	0	0	1

Table 2. Word associations related to traceability and perceptions about traceability across countries

	France	Greece	Spain	Germany	Netherlands	Italy	Malta	Slovenia	Hungary	Poland	Norway	Lithuania
<i>Word associations</i>												
Origin	+	+	+	+	+	+	+	+	+	-	+	+
Product information	+	+	+	+	+	-	+	-	+	+	+	-
Production process information (farm to fork)	+	+	+	+	-	+	+	+	+	+	+	+
Quality	+	-	-	-	-	-	-	-	-	+	-	+
Reliability/transparency of information	+	-	-	+	-	-	-	-	-	-	-	-
Food control System	-	-	+	+	-	-	-	-	-	-	-	-
	-	-	-	-	-	+	-	-	-	-	-	-
<i>Expectations of food traceability</i>												
Know the origin	+	+	+	+	+	+	-	+	-	-	-	+
Better hygiene (health)	+	-	+	+	-	-	-	-	-	-	-	-
Improve quality	-	+	-	-	-	+	-	-	-	-	-	-
Assure safety	-	-	+	-	+	+	-	-	+	-	-	-
More information – To know what they buy	+	+	-	+	+	+	-	+	-	-	-	+
Locate food products in case of food recalls	+	+	+	-	-	-	-	+	-	+	-	-
Differentiate products	-	-	+	-	-	+	-	-	-	-	-	-
Assurance - Control food products	-	-	+	+	-	-	+	-	+	+	+	+

Table 3. Pearson's correlation coefficients across countries

	France	Greece	Spain	Germany	Netherlands	Italy	Malta	Slovenia	Hungary	Poland	Norway
Greece	,500										
Spain	,000	-,577									
Germany	,500	,000	,000								
Netherlands	,258	,258	-,149	,258							
Italy	-,258	,258	-,447	-,258	,600						
Malta	-,378	-,378	,218	,378	-,293	-,488					
Slovenia	,775*	,775*	-,149	,258	,467	,067	-,293				
Hungary	-,577	-,577	,333	,000	,149	-,149	,655	-,447			
Poland	,000	,000	,333	,000	-,447	-,745*	,655	,149	,333		
Norway	-,378	-,378	,218	,378	-,293	-,488	1,000**	-,293	,655	,655	
Lithuania	,258	,258	-,149	,775*	,467	,067	,488	,467	,149	,149	,488

* p<0.05

** p<0.01

Table 4. Pearson's correlation coefficients across expectations

	Know the origin	Better hygiene	Improve quality	Assure safety	More information - To know the origin	Locate food products in case of food recalls	Different products
Better hygiene	,408						
Improve quality	,316	-,258					
Assure safety	,125	,000	,158				
More information - To know the origin	,837**	,098	,378	-,120			
Locate food products in case of food recalls	,239	,293	,076	-,239	,029		
Different products	,316	,258	,400	,632*	-,076	,076	
Assurance - Control food products	-,598*	,098	-,529	-,120	-,714**	-,314	-,076

* p<0.05

** p<0.01

Table 5. Differences per product types on traceability information

Country	Meat		Honey	
	Most preferred	Required information – Purchase criteria	Most preferred	Required information – Purchase criteria
Netherlands	<ol style="list-style-type: none"> 1. Butcher (4/8) 2. Organic (2/8) 3. Special quality (2/8) 	Ingredients; additives (like water and herbs); type of animal; origin; use of sulphate to enhance the red colour; use of gas in the packaging; place of slaughter; place of raising; if it was frozen	<ol style="list-style-type: none"> 1. Organic (4/8) 2. Strong brand (2/8) 3. Excellent quality (2/8) 	If it is bee honey or nectar; country of origin; type of plant/tree it came from; production method slung/dripped; whether it is mixed or not; convenience of packaging; appearance of jar (nice looking); price
Germany*	<ol style="list-style-type: none"> 1. Regional 	Origin; appearance (colour; fat content); freshness; packaging	<ol style="list-style-type: none"> 1. Regional with info about the origin 	Price; consistence (i.e. liquid); price; taste; origin; feed; additives; appearance of the package; convenience of packaging
Spain	<ol style="list-style-type: none"> 1. Strong brand with national origin (6/8) 2. Regional with PDO logo (2/8) 	Origin; expiration date; quality of meat (colour and commercial quality); price	<ol style="list-style-type: none"> 1. PDO (7/8) 2. Not specified origin (1/8) 	Origin; composition of flowers
France	<ol style="list-style-type: none"> 1. Regional label (5/8) 2. Strong brand (3/8) 	Name and details of the producer; origin; place of birth; place of breeding; breed (dairy/meat); age; appearance; packaging	<ol style="list-style-type: none"> 1. Strong brand (5/9) 2. Organic with foreign origin (2/9) 3. Regional honey (2/9) 	Origin; kind of flowers; ingredients; quality label; feed (sugar/treatments (antibiotics) of bees); expiration date; name and address of the apiarist
Italy	<ol style="list-style-type: none"> 1. Private label GM free (4/8) 2. Organic with foreign origin (4/8) 3. Foreign origin (3/8)** 	Price; colour; origin (“born, bred and slaughtered in Italy”)	<ol style="list-style-type: none"> 1. Organic (8/8) 	Origin; colour; place and date of collection; date of packaging
Greece	<ol style="list-style-type: none"> 1. Organic with strong brand (5/8) 2. Commercial with geographical indication (1/8) 3. Cheapest with private label; (1/8) 4. Private label; Geographical indication (1/8) 	Origin; colour; texture and animals’ fed; information about the company	<ol style="list-style-type: none"> 1. Commercial with strong brand (6/9) 2. Regional/ most expensive (3/9) 	Origin; ingredients/composition (which flowers/trees); colour; expiration and production date; information about the producer

* Ranking was not provided

** Participants ranged the specific product equally with others