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Abstract : *Food traceability has become mandatory since 1st January 2005 in the European Union. Traceability of products and activities in the supply chain has become a new factor of competitiveness in agribusiness and is deemed to be an important criterion of perception of food product quality and safety for consumers. This paper has three objectives: i) to get a deeper understanding of the role of the “ability-to-trace” in consumer decision-making process with respect to food, ii) to measure consumers’ acceptability for food traceability, iii) to check the differences of these matters across twelve European countries in order to highlight any specificity. The purpose is based on the analysis of the verbatim recorded within twenty four focus groups discussions carried- out in autumn 2005.*

Keywords : Food Traceability, Focus Groups, Consumer Attitudes, European Countries

1. Introduction

Nowadays, the accurate and timely traceability of food products and activities in the supply chain is a factor of competitiveness in agribusiness. Increasingly, consumers demand for verifiable evidence of traceability is deemed to be an important criterion of food product quality/safety. This trend seems to be based on the demand for food products with well-identified origin, the high incidence of food-related hazards and the still important concerns over the impacts of GMOs on human health and environment. In order to meet consumer demands for consistent supply of top quality, safe and nutritious food products, as well as rebuild public confidence in the food chain, the design and implementation of full backward and forward traceable supply chains from farm to end- users have become an important part of the overall food quality assurance system.

This paper has three objectives: *i) to get a deeper understanding of the role of the “ability-to-trace” in consumer decision-making process with respect to food, ii) to measure consumers’ acceptability for food traceability, iii) to check the differences of these matters across twelve European countries in order to highlight any specificity. The purpose is based on the analysis of the verbatim recorded within twenty four focus group discussions carried- out in autumn 2005.*

2. Material and method

Food traceability system is now mandatory everywhere in European Union since 1st January 2005. Recently, policy makers in many countries have begun weighing the usefulness of mandatory traceability for managing diverse problems such as the threat of bio-terrorism, region- of- origin labelling, epizootic crisis, and GMOs identification. Despite growing interest in traceability systems and recognition of the need to act more market- oriented, very little research has been done on consumer expectations and perception of traceability. Researchers, as well as managers, have mainly focused on technical solutions and not on consumers’ acceptability.

In the framework of the EU research project TRACE, a large survey was conducted in 2005 on consumers' perception of food traceability by means of discussions of focus groups involving twelve European countries. The focus groups were organized according to the current rules for implementation of this qualitative method used for consumer surveys [2, 3]. The recruitment was done by means of phone calls directed towards consumers out of working environment of each involved team. The survey was led with three different topics: one group discussed food purchase and relevant information displayed on food labelling; a second group focused on food traceability with honey and beef meat as concrete applications; and a third one discussed actual traceability systems and future ones as well. After one pilot group held in the six following countries, three focus groups were organized in: France, Germany, Greece, Italy, Spain and The Netherlands. One focus group was held in each of the following: Hungary, Lithuania, Malta, Norway, Poland, and Slovenia. Each focus group gathered 8 to 11 participants. Globally the focus groups involved 210 participants with a good balance of age, gender and professional status. A guide for the focus group discussion was written first in English, then translated in each native language after exchange between partners on each item, in order to ensure homogeneity of applied method despite existing cultural diversity [11].

3. Results: Perception of traceability elicited by the focus groups

A first analysis of results obtained, indicates clear congruence on two main topics: i) definition and interest of traceability varies among countries; ii) traceability is strongly perceived as related to genuine origin for most of participants, and in a minor extent as an ability to trace food products along the food supply chain, involving all other actors rather than only the farmers. We present now the detailed results according to this two main topics.

3.1 Definition and interest of traceability

In the last decade, "Traceability" was a hard notion for consumers, they were not able to define or to describe it. In the case of beef meat, the elicitation of terms linked to traceability moves from technical to general (and also to no-answer) when skills and household income of respondents decrease [8]. The kind of store seemed to be a discriminating criterion with regard to traceability perception: Shoppers in supermarkets pay little attention to traceability and seem less information seekers. Consumers using specialty stores seem to use trust towards sales persons as a substitute of traceability and they are more attentive to traceability than buyers in supermarkets.

The present focus groups show that, nowadays in France, Germany, Hungary, Italy, Malta, Slovenia and Spain, participants had a quite good knowledge of what traceability is. They mostly linked it to the origin or provenance of the product, the ingredients (processing), food scares (respective to each country) and control. While in Greece, Lithuania, Norway, Poland¹ and The Netherlands, "traceability" was a vague concept, and sometimes even unknown. In this case, participants tried to define the word based on its terminology "ability to trace". In Norway, the word "traceability" was not familiar in the context of food; participants confused table of contents and traceability information and they were unable to imagine or to understand the technology of tracing.

Participants perceived the utility of traceability in knowing what they are buying/eating, in having the possibility to have more information on a food product, and especially identifying its specific origin (to have the ability to choose; to avoid products coming from country they would not like to buy products from, due to ethical or political reasons). The second more quoted utility is the possibility to withdraw/recall a defected/suspicious product in case of a problem.

¹ the word "traceability" does not exist *per se* in Polish language Thus, the proxy "*monitoring the products along the food supply chain*" was used during the discussion in Poland.

The more salient elicited utility is : “*traceability is useful in order ...*”

- To avoid sanitary anxious and for better hygiene measures (France); to improve the quality of food products (Greece); to differentiate the products and choose among them (so it acts like a sort of buying criterion); to guarantee food safety; and to recognize the higher quality of a product (Italy); to ensure that a product arrives to the end user as a fresh product that is fit for consumption and to attribute responsibilities to certain entities (a means to connect consumer and producer) (Malta); to differentiate organic and transgenic products from the conventional food products; for food safety. Participants affirm that traceability also means a benefit for the companies, in order to facilitate the control of their products and to take care of their image (Spain).
- To give assurance. It sends the message that the food is “OK to eat” (Hungary); to control the quality of products (Lithuania); to give some feeling of security. Participants think that traceability systems are more beneficial for producers and controllers. They do not see the same value for consumers (especially if the price is higher or if no more information is given) except if there is something wrong with the product. As long as the consumers do not think there is a problem, they do not feel the urgent need for such traceability. If Norway enters the European Union, which is perceived as having a less restrictive ruling, consumers might feel the need for more traceability (Norway); to control/oversee the production, storage, and transport of products. In Poland the participants have negative opinions about the quality of control (particularly those with less education and older); the ability to withdraw potentially dangerous batches of products from points of sale, though considered praiseworthy, was not considered as particularly important for the participants .

These results are congruent with those which state that traceability evokes more the safety than the quality to consumers [7, 10]. Most of participants consider that it is indispensable, but there is a big part who thinks that such a thing does not exist. Still some consumers considered that implementation of such system is achievable, but they need to know that the information provided will be accurate and credible. Participants insisted on the need of a credible authority to provide such information and to implement traceability in all the companies.

Except for Spanish (who prefer EU), Greek (who consider that traceability is not implemented yet and that Greek companies want to cheat on them so they also prefer EU origin), Hungarian (who have a general lack of trust especially in their national bodies in case of emergency) and Maltese, all participants are satisfied with their national traceability and have more confidence in their systems than in other countries.

In the Netherlands, participants believe that their food system is very competent. They agree that the responsible institutions have enough experience to trace food products. In Italy, Malta, Slovenia and Spain, participants had difficulties to assure the competency of their current food system to trace a food product. Still, there was a general feeling of confidence.

In Norway, it was difficult for the participants to talk about how well the food traceability system works because they do not have any knowledge about this topic. They have never seen any traceability mark or being informed about traceability of specific products when buying foods in the store. They do not think that the food chain is able to trace every product. It seems that the participants prefer a local control system and not an international system. There is still certain mistrust against it, but participants declare to pay more attention to read labels and they seem reassured by a logo guaranteeing the validity of the information.

In all focus groups, except for Norway and the Netherlands, there were similar statements regarding the reading of labelling on food products. Participants stated that they read labels and pay attention to information provided on them. However, it's a superficial and fast reading. There was a common complain about the size and clearance of the labelling. Older people, sick/allergic people and people who follow a special diet pay more attention than the others and want more precise information on the labelling of their products.

In France, labelling (especially the stamp of veterinary control) is not well perceived by the participants and nobody was able to understand it, which make lots of misleading and illusions when buying some local products. In The Netherlands, geographical information for some product is linked to ethical concerns (working conditions in other countries), and fruit and vegetables' origin is linked to taste as well as to the possible use of pesticides.

Participants are not aware of all the stages of the supply chain and of all the steps a product (especially a processed one) has to fulfil before being available on the shelf. But, they prefer a short value-added chain, as they are interested in buying directly from the farmer. In France and The Netherlands, participants related famous brands to a certain taste they look for. In Greece, Italy and Spain a well-known brand is an important buying criterion because it gives security and more guarantee.

In France, Greece, Italy and Spain, traceability is considered as a buying and confidence criterion especially when it is taken as an information provider of the origin, the producers and the ingredients. While in Germany and The Netherlands, "ability to trace" does not influence participants' purchase. However, the information provided by traced products could increase consumers' trust. In Greece (well-known brand) and Spain (high quality labels), higher quality is broadly related to a better "ability to trace".

Participants had different opinions about their willingness to pay for traced food products. In France, participants thought that prices are already high enough, but they were willing to pay one € more for producers (not traders or shopkeepers). In Greece and Italy (even though some thought that producers should bear the extra costs) participants are ready to pay more for a well-traced product if the difference in price is low. In Spain (willing to pay more for high quality but not for traceability), France and The Netherlands (willing to pay for EU label with a credible background), some believe that one should not pay more for safety, because it is something that should be standard for products.

3.2 Traceability and origin

Information on geographical origin is very important to the participants especially for meat, fruits and vegetables. They all have a preference for regional products. They feel safer if they know the product is made nearby. Domestic fresh food products are commonly perceived as higher quality products. Participants declared to try to avoid foreign/imported products because they don't trust them and because they don't know the production methods (even in the near EU countries), they have no idea about the treatments (antibiotics, flour) used; and they are not sure that foreign countries have the same requirements for control followed in their own country. Still, it's commonly believed that the European food products give them usually more confidence than extra-European products.

Region of origin: Food products of the own region are preferred to products with an unknown origin. The preference for regional food can be interpreted as an image transfer between the region and the product, which is getting an emotional value for the consumer. The regional preferences are higher for fresh products than for canned food.

According to Alvensleben [1], regional indications have a positive value for participants and a majority is willing to pay more for a product of the own region than for a product with an unknown origin. The utility of a regional label is determined by the quality perception, emotions, preference for new things and experience with the product. Regional products are primarily purchased by consumers who live in the region. Clear labelling and emotional positioning are the key factors in a successful marketing strategy for regional products. For marketing processes the region can be an added value because of knowing where your food comes from, trusted environment, transparency (and traceability), positive identity and traditional product [9].

European certification of origin: The knowledge of the national/local quality and origin labels differs from a country to another, while there is a great ignorance about the European labels certifying the origin or provenance. They are not known (participants haven't seen them before on their products and they are not informed on their meaning) and their advantage is not understandable. The European labels, are not associated with a specific geographical area by respondents. The participants think that European labels could never substitute more local geographical information. In Greece, Italy, Spain and The Netherlands, participants were not aware of any national certification labels indicating quality and origin, they were more aware of strong brands and labels of traditional and regional food products.

Quality and origin labels are rarely buying criteria. They are sometimes taken into account combined with other criteria (like price and brand). They are considered very expensive but still tastier. Participants all prefer a domestic/local product. However, it is still important to mention that participants from non- EU country are less favourable comparing to EU countries. In Norway, consumers need to feel an added value to traceability (like quality labels) because up till now they believe that traceability is more oriented towards producers and controllers. In France, participants were not sure if other European countries have the same restrictions and constraints in production, as it is the case in France. In the Netherlands, participants argued that anyone could stick such a label on products; it is susceptible to fraud.

In general, participants think that traceability of food products with origin and quality labels is better and more guaranteed. Perception of geographical origin is closely linked to consumers' attitude to countries and culture.

4. Discussion

Summarizing, the responses of participants of focus groups differ according to country and depending of the specific topic. The discussion guide planned to focus on knowledge of traceability, labelling, PDO labels and brands, also on traceability regulation, link with origin, regional products, quality and trust. Then the guide led to relationships between traceability and withdrawal, food safety, food scares, information, buying criteria, willingness to pay, and finally to traceability control and food supply chain, or ethical concerns.

Finally, an insight based on multifactor analysis of textual data extracted from the recorded verbatim of all focus groups, using SPSS software, gives interesting segmentation between European countries with respect to consumers' perception of food traceability. This factor analysis allows to identify the nine most discriminant variables up to 20 items (see Table 1 in annex). The first factor identified explains 30.39% of overall variance and is built with variables *Regulation*, *Control*, *Withdrawal*, all with modality "high", by opposition of *Withdrawal* level "low". The second factor (22.36% variance) is made by variables *Control* level "low" opposite to *Ethic* level "high". The third factor is drawn by the opposition between *Trust* level "low" and *Supply chain* level "low", it explains 13.39% of the overall variance (see Figure 1).

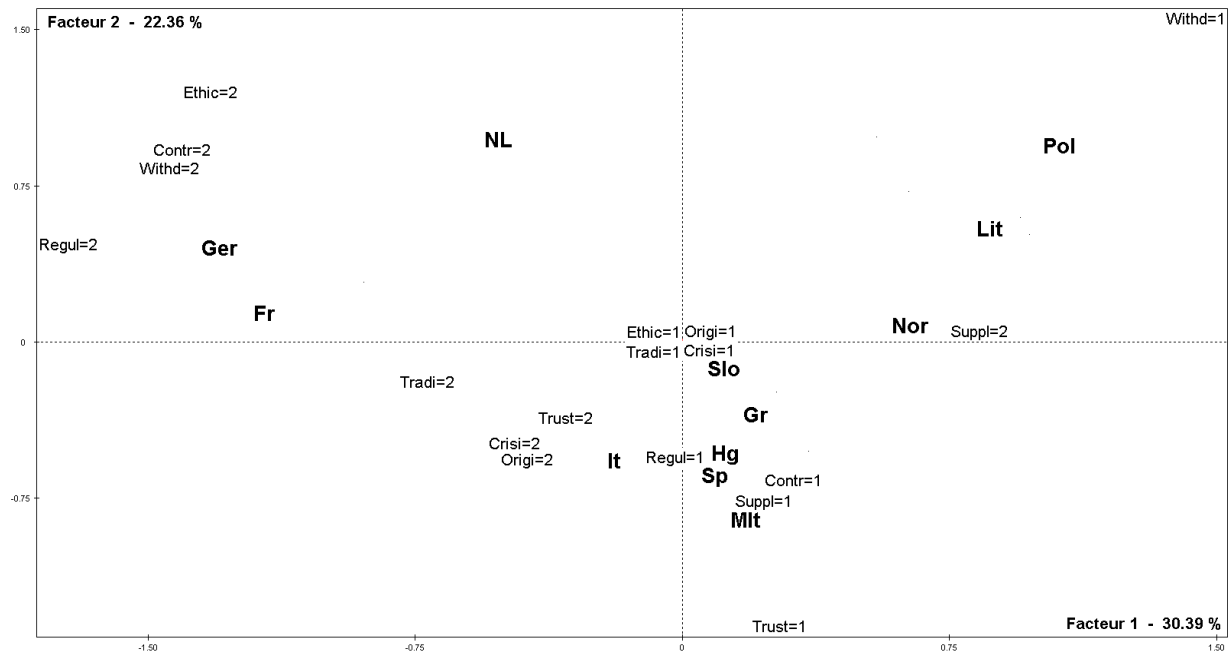
The main structure of consumer perception of food traceability is based on the opposition between private responsibility of supply chain actors and low trust in withdrawal plans (Poland, Lithuania, Norway) versus public regulation, efficient controls and withdrawal procedures (Germany, France, The Netherlands), and ethical concerns in a minor extent. An other specificity appears in second factor with opposition between low involvement of supply chain and low trust in traceability (Malta, Spain, Italy and Hungary) versus all other variables. Slovenia and Greece seem to be in a more central position.

Figure 1. Factor analysis of content of consumers' perception of traceability per country

Caption: the most significant items elicited are: **Contr** = preference for his/her own country of origin; **Origi** = confidence in local and guaranteed origin; **Tradi** = confidence in traditional food products; **Ethic** = traceability used for ethical concerns; **Withd** = traceability used for withdrawal plans; **Crisi** = traceability used in case of food crisis; **Regul** = traceability obtained by public regulation system; **Suppl** = traceability linked to supply chain actors' involvement; **Trust** = trust in food supply chain; Modalities: **2** = positive or high level of response, **1** = negative or low level of response

4.1 Managerial implications

Consumers are still not ready to accept sophisticated systems and supports of traceability. They need to be informed more and to be more in touch with what is happening on the markets. There is a huge work to do to communicate more with the consumers and to create links between producers, technicians and consumers. This general statement should be moderate by some considerations. In Greece and Malta, participants asked for more strict regulation in order to help developing traceability and for a powerful authority to control the reliability of the information and to prevent frauds. In France and Italy, participants prefer to



use traditional and already known systems, they want to get back to trust farmers and shopkeepers. In almost all countries, participants have difficulties to express a positive willingness to pay for traced products.

According to our primary findings, traceability should not be implemented on a pure technological manner, but should take into consideration consumers' expectations towards more simple and reliable systems. Not surprisingly, food traceability improvement may be strongly linked to communication rather than to technological investment.

Paradoxically, any more complex system of food traceability seems to introduce more doubt and question rather than confidence and clarity, according to the principle of incorporation [5]. Finally the improvement of food traceability in Europe could be easier if well documented on communication and advertising campaigns. The main consumers' expectations for future traceability do not seem to encourage complexity of supply chain organization regarding traceability.

Participants in southern European countries have more difficulties to assure the competency of their current food system which was noticed in the Maltese and the Greek demand to enforce the law. Except for French ones, and like Dutch, participants are not aware of any national certification labels indicating quality and origin; they only know strong commercial brands and, in a minor extent, labels of traditional and regional food products. This is also a major managerial issue: the future of food traceability seems to be linked to branding strategy of agro- food companies. Food traceability basically includes cognitive weight. However, it does not seem to belong, up to now, to embodied representations [6] in consumer decision- making process with respect to food, as brand looks like a substitute.

5. Conclusion

In conclusion, it was found that participants in southern European countries (France, Italy, Malta, Slovenia and Spain) are a bit more aware of the term 'traceability' than northern ones. In these southern European countries, traceability is considered as a buying and confidence criterion; while it does not influence participants' purchase in The Netherlands and Germany. In France, Italy, Malta, Spain, and also in Hungary and Norway, consumers relate the utility of traceability to the concept of safety; while in Greece and Lithuania, it is related to quality and in Poland, it is connected to control and to withdrawal of infected batches.

Further research in this topic should better quantify the present findings. It is planned to carry out laddering interviews and trade- off measurement with 200 consumers in five countries in a next stage of the project. On a methodological standpoint, it is interesting to confirm that, when well calibrate and thought in a cross- cultural way, focus group method is not only an exploratory one, and can lead to congruent results, even if, as qualitative approach, it is deemed not to allow repeatability.

6. References

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Annex

Table 1. Differences of focus groups responses according to food traceability related items

Item	Fr	Gr	It	Sp	Mlt	Slo	Ge	NL	Hg	Lit	Nor	Pol
Traceability	Y	N	Y	Y	Y	Y	Y	N	Y	N	N	N
Labelling	N	N	N	N	N	N	N	Y	N	N	Y	N
PDO Labels	Y	N	Y	Y	N	N	N	N	N	N	N	N
Brand		Y	Y	Y				Y				
Regulation Certification	Y	N	N	N	N		Y	N	N			
GMO				Y								
Organic food				Y								
Origin	Y		Y	Y	Y	Y	Y		Y			
Traditional Regional	Y	Y										
Quality		Y			Y						Y	
Confidence Trust	Y	Y	Y	Y	N		Y		Y		Y	
Withdrawal	Y						Y	Y				N
Food Safety	Y		Y	Y					Y			
Crisis	Y		Y	Y	Y	Y	Y		Y			
Information Communication			Y	Y								
Buying criterion	Y	Y	Y	Y			N	N				
Willingness to Pay	N	Y	Y	N			Y	N			N	
Control	Y	N	N	N	N	N	Y	Y			N	
Supply chain Retailer		N		Y	Y				N	Y	Y	Y
Ethics							Y	Y				

Caption: Yes = positive or **high** level of response, No = negative or **low** level of response, blank = no response