

## **Deuxième journée AFM Marketing agroalimentaire de Montpellier**

### **Session 4. Marketing dans les filières agro-alimentaires**

#### **French consumers' perception of food traceability**

#### **Via Origin and Quality Labels and Other New Supports**

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##### **Abstract**

Nowadays food traceability has become a factor of competitiveness in the agribusiness and it has become mandatory since January 2005. We propose in this article to study consumers' perception of food traceability via origin and quality labels and other new traceability supports. We will focus on a French literature review joint to focus groups done in the framework of a European research project to get a deeper understanding of consumers' perception and expectation of food traceability.

*Keywords:*

*Food traceability, origin, quality label, consumers' expectations, focus group*

## **Résumé**

De nos jours, la traçabilité des produits alimentaires est devenu un facteur de compétitivité dans le secteur agroalimentaire, et elle est obligatoire depuis janvier 2005. Nous proposons dans cet article d'étudier la perception des consommateurs envers la traçabilité des produits alimentaires par l'intermédiaire des labels d'origine et de qualité et d'autres nouveaux supports de traçabilité. Nous nous focaliserons sur une revue de la littérature française et sur les résultats de groupes de discussion réalisés dans le cadre d'un projet de recherche européen. L'objectif est d'obtenir une meilleure compréhension de la perception et des attentes des consommateurs envers la traçabilité des produits alimentaires.

*Mots clés:*

*Traçabilité, produits alimentaires, origine, label de qualité, attentes des consommateurs, focus group*

## **Introduction**

In order to meet consumers' demands 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 and are now mandatory everywhere in EU since 1st January 2005. Food traceability has become a factor of competitiveness in agribusiness. Nowadays, it is an important criterion of consumers' perception of food products' quality and 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 important concerns over the impacts of GMOs on human health and environment. New food labelling rules came into force on November 2005 to ensure that the complete contents of pre-packed foodstuffs are listed on the product label, enabling consumers to identify any allergenic ingredients that may be present. Moreover, beginning 1<sup>st</sup> January 2006, there has been the new food "hygiene package", under which there is an introduction of a Hazard Analysis and Critical Control Points (HACCP) system for all business operators (except primary producers). It is to identify any critical step in supply chain activities to the existing food safety and to ensure that adequate safety procedures are

identified, implemented, maintained and reviewed (Freshfields Bruckhaus Deringer, January 2006).

Hygiene and health controls during the production improved these last 10 years, however food products are riskier than before due to the extreme industrialisation of the production and because there is no more transparency between consumers and producers. Food crises (BSE, bird flu...) push consumers to find ways to reduce the risk for their health thanks to some criteria like the origin of the product, its mode of production or other guarantees like the official quality signs and the controls that reassure the consumers (Falconnet and Guillon, 2001; Courvoisier and Courvoisier, 2005). According to Gallen (2001), the need of reinsurance felt by the consumer has several dimensions: the knowledge of the brand, the approval of private and public bodies, the experience with the product, the social correspondence and the information on the packaging.

### **Objectives and Method**

Our objectives are *i)* to discuss about the purchase of food products and to show the different importance of the various attributes of a product; *ii)* to identify consumers' knowledge about origin and quality labels; *iii)* to get a deeper understanding of consumers' perception of food traceability (how do they define it, what do they expect from it, its benefits and value, what is its role in the satisfaction of their needs and wants, how do they want to get informed about it, their willingness to pay for it); *iv)* and to experiment their reactions on different supports of traceability.

Food consumption meets certainly a vital need (more or less easy to satisfy), also, it became a means for health, pleasure, image of oneself, and social integration; it is an element of a certain art of living, of a certain philosophy of life. The conceptual contribution in this paper is to include to this affective framework, the cognitive element that is "traceability" and to participate in creating a manner to implement food traceability in food systems, taking into account consumers needs and expectations.

In the frame of a European research project TRACE<sup>1</sup>, a large survey was conducted in 2005 on consumers' perception of food traceability in Europe by means of 24 focus groups (4 focus groups per country) in 12 countries including France. In addition, a literature review was carried out at a European level, by means of key words *Food + Traceability + Consumer* with a special focus of papers published during the last decade in peer review and professional journals because traceability has been approached in many and broad ways. In this paper, we will only focus on the French data due to authorship reason. In France, 79 French papers were collected, among them only 33 papers actually focusing on the purpose were analysed, avoiding duplications. It was not an easy task to select very pertinent papers with the high number of papers that claim to be concerned with consumers' perception and expectations, now that consumer science is a very trendy matter.

Focus groups provide a rich and detailed set of data about perceptions, feelings, and impressions of group members in the members' own words. They represent a remarkably flexible research tool in that they can be adapted to obtain information about almost any topic. The decision to use this method is to generate and obtain answers for specific research questions, and especially to explore the way particular groups of individuals think and talk about a phenomenon and to generate ideas. They are designed to help understand how individuals conceptualize and categorize phenomena; which makes it a rigorous scientific method of survey (Stewart and Shamdasani, 1990; Krueger and Casey, 2000).

The focus groups were organized according to the current rules for implementation of this qualitative method used for consumer surveys (d'Astous, 2001; Evrard, Pras and Roux, 2003). The recruitment was done by means of phone calls directed towards consumers out of working environment of each involved team. A guide for the focus group discussion was written first in English, then translated in each native language after a long process of deep exchange between partners on each item, in order to ensure homogeneity of applied method despite existing cultural diversity (Usunier, 1998). In France, the focus groups involved 36 participants with a good balance of age, gender and professional status (even though it was hard to keep the gender balance; women seem to be more interested in this kind of group discussion especially when the topic is about food).

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<sup>1</sup> [www.trace.eu.org](http://www.trace.eu.org)

## **Results and Discussion**

### ***1. Variety in consumers' habits of food products purchase***

Questions on purchase place and frequency were used as warming-up of participants' attention. According to Lacoste (1991), four criteria determine the attitude of the consumer towards a product: the economic means, the nearness to the origin, the time and the knowledge. When the consumer has the time, he/she chooses her place of purchase and her products (attentive reading of the labelling). If he/she does not have it, the purchase is led by visual codes (brand, abbreviation, packaging, and price). Buying habits differ with the status of the participant. Participants who live alone or with no large family prefer not to do big purchases; they buy their products when they need them. While participants who have small kids were more selective and paid much more attention to their food products selection and to the location of purchase of these products too. What is important to mention here is that the selection of the purchase location depends a lot on the type of the product. Giraud and Trigui (2005) declare that choices of consumers are based on attributes of search, experience and confidence. In France, there is a come back to small shops and 'natural' products. Consumers trust more the shopkeepers of small stores, butchers and farmers. Consumers' confidence is based either on quality indicators with the origin, the naming, the brand, the price, or on an interpersonal relation with a salesman or a close person (Sirieix, 2001).

For most of the participants, reading labelling has become a habit or a routine especially when buying a new product because they trust less and less the producers. It seems that food crises modified consumers' consumption and made them look for more and more information before buying a product. All the participants complained about the small writing on the labelling and on the fact that most of time the labelling is not clear or understandable at all; plus, it is a time consuming activity. A survey done by Giraud and Amblard in 2002 show that the most informed persons about food products are those who have a high income.

The attitudes towards the food and the search of information are varied and determined by economic, social, cultural, psychological and situational factors. The conscience of the risk is raised by the communication campaigns of the authorities, by the media, by the anxiety with the anticipation of death, and by the increase in the education and the standard of living (Bergadaà, Urien, 2003). Participants complain about the disinformation that they get sometimes from advertisings on the media and about the problem of hygiene in the canteens,

which for some of them is due to the cost reduction that pushes people to have non-hygienic and non-ecological actions. Three feelings were recorded during the focus groups: disinformation in some advertisements for some products; over information on the labelling of some other products (lots of logos, many labels, and lots of information written on the same labelling); and also misinformation (they don't know the meaning of everything written on the labelling, they don't know all the labels, which ones are official, which ones are not...). The consumers look for some information about a product before buying it, notably the composition, the origin, the price and the freshness (Courvoisier and Courvoisier, 2005). Aurier and Fort (2005) describe brand as "the default influential factor".

During the focus groups, among the following attributes 'information on location of production, processing, packaging', 'information on geographical origin', 'price', 'brand', 'labelling', 'precise address and phone number of manufacturers and producers'; participants chose origin and price as the most important information for a food product. While the importance of attention paid to brand depends on the type of the food product. All participants prefer French products. Origin is considered as a reassuring attribute. It is connected to emotional values and holidays memories.

The influence of the food products' country of origin on the evaluations of the consumers depends on several criteria: the perceived degree of pertinence of the information, the motivation, the implication, the preference for a particular country, the perceived risk, various attributes, the importance of the origin in regard to the other elements and the easiness to find the information. With the globalization, the image of the origin has become more complex. The origin of the product is composed by: the country associated to the product, the country of manufacturing and the country of conception (Usunier, 2002). The absence of indication of the origin implies either a perceived risk with the avoidance of the product, or a process of inference to fill the missing data. A negative attitude, which is function of the faiths, can be also activated, when the origin is clarified. The experience influences the confidence in quality indicators. Quality indicators give an idea of the other attributes. The origin is not considered alone but with the other attributes, its importance being more raised when the other attributes are absent (Dandouau, 2001).

Other quoted elements that participants pay attention to generally when purchasing a food product are: date of expiration, place of production, feed, nutritional label, composition

(Lecithin of Soya, preservatives, “E-number”, fat, sweetener, substitute, quantity of carbohydrates), ingredients, GMO (organic or not), label/no label (quality, origin, fair trade, glycaemia), treatments (hormones, injections, insecticides, pesticides, fertilizers), and “traces of”...

## **2. Knowledge of origin and quality labels, discrepancy between consumers**

Rural development is progressively becoming one of the major objectives of the EU policies stressing the importance of supporting typical products. Typical products are strictly tied to their area of origin, as they derive their characteristics from the paedoclimatic, technical and organisational peculiarities of the “terroir” they come from. They are often considered as useful "tools" to keep local culture and traditions, and to foster rural development especially in disadvantaged and mountain areas (Pacciani *et al*, 2001; Sarig *et al*, 2003). The use of a Designation of Origin in food business is playing nowadays a key role in the success of differentiating strategies especially that consumers appear to value the authenticity of these labelled foods as they represent a transparent method of production that can be trusted and also a higher quality of the product. Consumers' relative attitude towards Protected Designation of Origin (PDO) strongly influences repeat purchases. If consumers had positive experiences with PDO products they become loyal towards the product and this causes a willingness to pay a price premium. Perceived quality is an important determinant of consumer loyalty (Giraud, 2001). Consumers' attitude towards the region of origin indirectly influences regional product loyalty, through the relative perceived quality of the product. Food products with region of origin labels offer to consumers more sensory, social and emotional values than standard food products, because consumers identify themselves with the region of origin of food products (van Ittersum, 2001). PDO products consist on a differentiation strategy that is used to get a superior added value and to associate those regional products to the diverse attributes of this area. PDOs meet the quality requirements in order to satisfy to the most demanding consumers. However, they face two strong competitors: the commercial brands, well supported by advertising campaign, and well identified by means of a constant and exacting involvement of companies behind them (Sirieix, 1999).

Defined as a sign that conveys information on the product quality, a label must be credible to reduce the uncertainty perceived during the evaluation of the product quality and to be taken into account by the consumer. The quality signals allow the consumers to build congruent or

inferential believes, and determine their attitudes towards food products. The quality signs inform the consumer, reassure him, supply reference marks, favour the trial of the product and create its reputation (Larceneux, 2001). A study done by Courvoisier and Courvoisier in 2005 shows that the knowledge of labels by the consumers and their signification are very vague, certainly because of the too big variety of labels which pushes the consumers to express their distrust to the promises of certain labels. Bellot *et al.* (2003) found the same results but for them, official quality signs are considered as a quality reference for consumers, which make some of them accept prices premium. Thus, consumers' associations ask for more precise information to increase the credibility of the official quality signs.

The consumers notice an increasing accessibility to products (wide choice, improvement of the hygiene) but they are disorientated with too much information, standardization and a denaturalisation of products. In front of his fears, the consumer wants to find quality guarantees to base their confidence in because quality signs are a rapid way to identify a product of a higher quality. According to Lacoste (1991), the quality perception of foodstuffs is different according to socio professional groups.



**Figure 1: Labels shown to participants**

In the focus groups, Label Rouge was the first quality label that popped up into participants' minds. This confirms the study done by Falconnet and Guillon in 2001 saying that three French on four declare the "Label Rouge" on top of the quality signs that he/she knows.

Participants were not able to recall the names of some labels even though they had their images/logos in their minds. They were able to visualize them but not to quote their names. For one of the participants, quality labels are just for advertising, they don't have any meaning. AOC (Appellation d'Origine Contrôlée) and AB (Agriculture Biologique) were also the most quoted quality labels. Although AB is well recognized by the participants not all of them believed in the existence of organic foods. Some of the participants thought that AB is not a label and that it is just a logo. And those who believe in it, think that this kind of products is very expensive. The consumers grant importance to an organic production and are ready to pay the price, but they do not perceive the quality difference of products. The consumers also demand a transparency in the pricing. (Vandercammen, 2002). A new tendency to pay attention to ecological labels has been detected too. After the moderator presented the photos of some quality labels, participants recognized the national/local ones but not the European. Only one participant said that AOP (Appellation d'Origin Protégée =PDO) is the European AOC, and she said *'I never saw this label on any product while shopping'*. For all the participants, the European labels had no meaning at all, they think that PDO (Protected Designation of Origin) and PGI (Protected Geographical Indication) have no value, because the two logos are very similar and consumers can easily confuse them. They weren't aware that these two logos were already used in the market. As a consequence, they don't trust European labels; especially that they are not sure that other European countries have the same restrictions and constraints in production as it is the case in France. In general, origin labels are well perceived by consumers because origin can influence differently the evaluation of a product according to its category and because of the importance of local origins that bring social and emotional values (consumers identify themselves with the food origin). Finally, all labels are accompanied with a doubt to the authenticity of the labels emission and their issuers. The consumers ask for a communication and for more transparent controls. They want to be informed of the variation of the legal frame (Vandercammen, 2002). For Falconnet and Guillon (2001), consumers want to have lots of information but do not still take it into account during the purchase.

A label is effective only if it is recognized, understood, perceived as reliable and appreciated by the consumer, and also available in shops. The knowledge of labels and their role is very weak and few consumers consider them as an important criterion of choice (Giraud, 2001; Rousseau, 2004). Participants declared not to buy lots of food products with quality labels.

For them, this kind of food products is very expensive but still they are a guarantee for higher quality. Participants who paid attention on the fact that their meals must be healthy buy products with AB (despite their very high prices). But, in general, they think that traceability of food products with origin and quality labels is better and is more guaranteed.

The willingness to pay (WTP) for quality labels depends on the type of food products and participants' diet habits. In his study in 2004, Vandercammen showed that consumers who have a high interest for labels are the oldest, the least numerous families (notably the couples with a child), and the persons belonging to lower social groups (even if they do not buy them). Three quarters of the consumers wish to be more informed about the utility of labels, notably the singles and the couples living in secondary cities or in urban areas. And he noted differences according to consumers' profiles because the most interested in information are 40-49 years, the households of 4 persons and the lower social groups.

Giraud (2001) distinguished five categories of labels buyers: the amateurs of the quality signs (connoisseurs), the brand prone, the rational who buy distributor brands, the thrifty who buy no frills products with lowest prices and the open-minded who do not show any preference. Studies showed that the information connected to the experience has more impact on the choice of the consumers than the quality signs. However, the consumers attach more importance to the quality signs than to the official information of ingredients and composition (Larceneux, 2001).

### ***3. Food traceability as seen by consumers***

#### ***3.1. Personal definition and utility of traceability***

In a survey done by Gauthier in 2005, he noticed that the term traceability does not mean the same thing for all the consumers. The most quoted answer was concerning all the stages of the production. For the consumers, the traceability evokes more the safety than the quality. The majority of the French consider that the traceability is indispensable, but 1/3 thinks that it does not exist. French are favourable to a connecting database for all the stages and are ready to pay a lot more for information more precise on products. The consumers feel reassured by a logo guaranteeing the validity of the information. This survey shows well that people wish more traceability of food products.

The official definition of traceability is the “Ability to trace and track food, feed and food and feed ingredients through all stages of production, processing and distribution”. It guarantees the immediate recall of food and feed in case of need. Traceability is also desired to get a unique reference (number) that can be used as a key for additional information about the product by means of any recording device.

**Table 1: Traceability as defined by the participants**

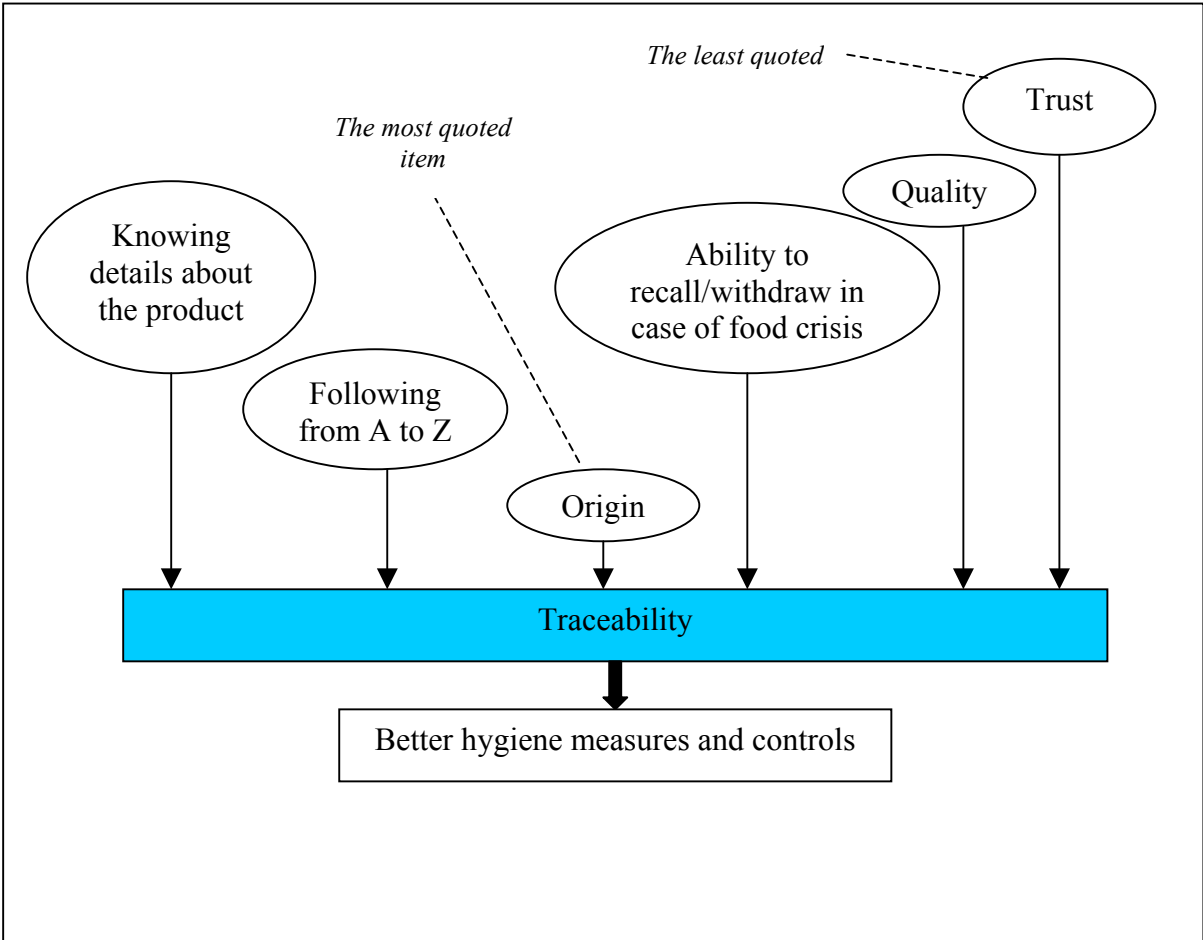
Definition written by consumers (written on a paper sheet)
The quality of the product, its freshness, its colour and its aspect
To know where the product were raised, who raised it, when was it slaughtered (then the participant felt that his answer were very oriented to meat)
It's the provenance of the product from A to Z (until the final product); it's the origin of the product
It's the following of the product from its production to its consumption passing by its transformation. And it's the following of all its components
It's the origin of the product
It's the origin of the product's production, the country, the cattle farmer, the age of the animal, its breed
It's the following of the product from its production to its consumption, from farm to fork, giving us the ability in case of a defective product, to follow and to find out the reason of the problem
It's the identity card of the product, its characteristics, the producer, the origin, the provenance, the breed of the animal, its age, where was it bred
The origin of the product, where does it come from, the country, the producer, is it treated or not
The provenance of a foodstuff, to know where does it come from in case of an epidemic...to follow the source
The provenance, the progress, the age, and the treatment of a product so we can go back to the 'guilty' in case of a problem
The reliability of the provenance
The provenance, the age, the breed, the place of breeding, the owner, the cattle farmer (meat)
It is the ability to know the origin of a product and its following from A to Z until the final consumer
The date of birth, the place of breeding, the date and place of slaughtering of the animal
Knowing personally the cow...origin from the producer to the consumer
Finding the trace of pesticides, it's the freshness of the product, the preservatives
The name of the producer or the cattle farmer

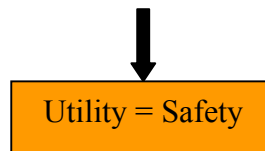
Participants had a good knowledge of what traceability is (participants' level of awareness increased from the pilot to the last focus group - 5 months later). They mostly linked it to the origin and the provenance of the product. Some of them even mentioned that it's the tracking of a product from its production to its consumption (farm to fork; from A to Z) passing by each step of its transformation and giving the consumers the ability, in case of a problem, to follow and to find the source of this problem. However, some of their definitions weren't general; they linked them to a specific product (meat or fruits and vegetables) to have a concrete vision of traceability. The level of concern depends on the product category and the shop fame.

Ability to trace as an information about origin, ingredients, producers, distributor, etc...is a buying and confidence criterion for the participants. Different levels of traceability were expected according to the type of products. Expectations in term of traceability also vary from a country to another. Participants want to have more precise origin for all food products and

clearer labels especially with the ingredients and the composition. They feel that they are not sufficiently aware about traceability.

The results of the focus groups showed that traceability is perceived as useful only in case of a food crisis (to withdraw defected products) and for a better hygiene measures. It is related to the concept of safety. The utility of traceability was mainly to know where does a food product come from (especially in case of a problem) and to avoid sanitary anxiety. Participants gave the example of Leclerc's crisis of minced meat (October 2005).





**Figure 2: Most quoted concepts in relation to traceability and its final utility**

The concepts of food safety and traceability are dependent, the food crises being partly caused by the absence of traceability. The traceability is in particular required for the principle of precaution. The purpose of a better control of all the actors of the food chain is to gain the confidence of the consumers. An effective traceability is characterized by the identification and the exact localization of the product, the availability of information, the exhaustiveness of the product's history, the predictability of its future, the compatibility of information with those of the intermediate products, the regrouping of information on a single and harmonized support, the continuation beyond the lifetime of the product and the accessibility in term of costs (Lehu, 2000). For Giraud and Amblard (2002), traceability is associated to the labelling, which the consumers want with clearer information and less charged. It is considered as important and seems to answer consumers' need for information.

When it comes to who the participants think that they can endure the task of implantation of food traceability, many options were quoted: someone independent to control the producers; not necessarily independent because producers are the most concerned and have the biggest interest to produce good quality food; a State organism; the Government; a public organism (territorial community); the cooperatives. Some participants even were content with the actual controllers (sanitary service). All participants need a good certification; they also want a clear and simple logo (label) as a guarantee. However, as Larceneux (2001) mentioned, the success and the taking into account of these signals during the process of purchase depend on their attraction and on the credibility that the consumer grants to them. Credibility can come from the independence of the source of information from the company. The social sources seem to profit from a greater confidence than the commercial sources on behalf of the consumers.

Concerning participants' willingness to pay (WTP) for traceability, some participants were wondering '*why must a traced product cost more?*' They think that there are lots of intermediary in the supply chain, which implies lots of percentage taken by each one of them, and that's why the prices are getting higher. They believe that the actual prices are enough to

cover the additional price for traceability. Some were only ready to pay a small amount (1€ more) for the producers to guarantee a higher quality for their food products. But, they are not willing to pay any cents for the margin for traders and shopkeepers. While in a study done by Giraud and Amblard in 2002, they found that some consumers are ready to pay dearly more to have information about the traceability.

### *3.2. Consumers' general perception of traceability*

The perception of the traceability and its consideration in the criteria of purchase is variable according to the type of selling points and to the income level and on the type of frequented shop (Giraud and Amblard, 2002; Giraud, 2004). Participants have more confidence in French systems and products than in other countries. Concerning imported food, participants were wondering if other countries have the same norms and hygienic constraints as there is in France. And they think that there must be some kind of an agreement between the countries to have the same specifications notebook. In addition, for them, France is a country very well known for its cuisine, which is a good quality guarantee. But one of the participant stressed that traceability is something different than quality. Finally, there was a general consent on the fact that if they are here today to speak about food quality, this means that they are privileged.

There have been a general solicitation for producers to get back to the old values and to reactivate their consciousness because 50-60 years ago things were completely different, which is partly due to the problem of cost reduction. It is a clear remanence of the lost paradise myth. Participants want to go back to trust the producers. They want to have access to information when it's needed. And finally, they demand the Ministry of agriculture or the DGCCRF (General Directorate against Fraud in Consumption and Competition) that controls must be reinforced.

For participants, traceability should be automatic and not necessarily present. In accordance to Rozes (2001) results, they don't like the idea of having information about products by telephone or by Internet to check their food products after the purchase. They want the strict minimum information with a kind of guarantee label; they called it a 'trust label (or logo)'. But here again they were faced with the same old problem of having plenty of labels that they already confuse.

**Table 2: Traceability communication**

Communication propositions					
Internet	Bar code	Label	Information in the store	Phone nb	Other propositions
No use of information checking after purchase	Yes, only if a scanner is available in store	Yes, pb: there are already a lot of confusing labels		Yes	Cell phone that scans products; a scanner at home

### 3.3. Differences in consumers' expected level of information of different food products

In one of the focus groups, there was sample presentations of different types of honey and beef meat. First, 4 different jars of honey were presented to the participants. These jars combine different criteria: regional product, organic/foreign product, geographical indication, no frills and strong brand.

Generally, the information that participants look for on a jar of honey are: the kind of flowers, the origin, the ingredients, ECOCERT (=quality label), the feed (sugar)/treatments (antibiotics) of bees, honey heated/not, the expiration date in numbers not letters, and the name and address of the apiarist. Participants were asked to rank the 4 jars according to the expected level of information provided, (from the most to least traced) and to explain their choice. (see Annex1, Table3)

As a result, strong branded honey was the most preferred; while no frills one (mixture of different honey from different European and non European countries) was the last ranked for all the participants. The youngest participants noticed that strong branded honey had an internet site where consumers can type the batch number of the product in order to have all the information needed about the origin, the type of flower, and the packaging place. Regional honey was ranked second; for participants, it is a regional product, it has the address and phone number of the producer, and it comes from the countryside, which means that it is from small producers and not industrial. Finally, Organic/foreign origin honey was ranked third; participants noticed that it is organic, certified ECOCERT, it has the origin, the kind of flowers, and it is mentioned that it is made in France.

Among the products ranked first, there was like a duel between regional honey from one side and organic and strong branded honey from the other side because these two had foreign origins (Italy and Hungary). In the second rank, there was a regular opposition between regional and organic honey (except for the last participant). We notice that choosing strong

branded honey as first is not related to the incomes of the participants. Actually, there is no significant relation between participants' socio demographic characteristics and their preferences for honey types.

Secondly, 4 different pictures of fresh beef meat packages combining different criteria were presented to the participants: beef with regional label, no frills, organic (AB), and strong brand. Generally, the information that participants look for on a piece of meat are: the name of the producer, the name of the slaughtering house (to use names instead of codes), the place of birth, the place of breeding, the breed of the cow (dairy/meat), its age, and its precise origin. Participants were also asked to rank the 4 pictures of meat according to the expected level of information provided and to explain their choice.

Regional sample is ranked first 5 times, second 3 times and never ranked third or fourth. Lowest price sample is ranked second 4 times, and 4 times third. Organic sample is never ranked first but 5 times fourth, 1 time second and 2 times third. Strong branded sample is ranked 3 times first, 3 times fourth and 2 times third. Regional beef meat was the most preferred, it contains: age, breed, regional, 'born and raised in...', and identification number of the slaughterhouse. The no frills beef meat was a special offer from a superstore, origin France and the cheapest. For strong branded beef meat, participants noticed the number of the livestock, the number of the cow, the mode of packaging and its advantage, and the breed of the animal. The organic beef meat was with origin France, but as participants didn't believe in the existence in organic meat, that's why it was ranked last (*see Annex 1, Table4*).

The regularity of opposite sequences of ranking is remarkable: those who rank first the regional sample, reject the strong branded one, and *vice versa*. And those who prefer lowest price meat reject the organic one (except for one person; it was a retired lady with a low education level, she was the oldest of the participants and was one of those having the lowest income/month). Participants who rank strong brand meat first were females, aged between 36 and 58, having 2 to 4 persons in their household, and having higher income/month). While those who rank strong brand last were also females, the youngest and the oldest, living alone, and having the lowest incomes/month). Participants who reject organic (rank last) meat had between 36 and 58 years old, they are all workers and they had the highest incomes. The 3 participants who didn't: the retired oldest participant with a low education level (2<sup>nd</sup> rank) and 2 students who were the youngest with the highest education level. Therefore, we see that age

and education level have an influence on the acceptance of organic food products. While income and number of persons in the household affect the preference for strong branded meat. The preference for regional products is not characterized by any special socio demographic aspect.

We observe that the expected level of information is completely different according to the type of food product. While for honey strong brand was ranked as first, it was ranked third for meat. And while the first price honey was totally rejected for honey, it was ranked second for meat. It may be due to the different nature/essence of these two products and their respective consumers. However, we have to mention that the appearance, the colour and the texture of the food product play a major role in consumers' preferences. D'Hauteville (2003) declares that the sensory component have a particular importance in food products acceptability and he displays the moderating role of sight on the other senses and on the global evaluation of the quality of the product. In a general manner, participants were asking for a clearer labelling; they want a new quality label that they are sure it can be trusted. After this experiment, we can conclude that there were five groups of participants in the context of traceability: the anxious (worried about their health), the well informed, the ones who buy food products based on their principles (anti-GMO, pro-organic), the social concerned (attached to national and regional products), and the budget related ones (money constraint).

#### ***4. Consumers' reactions to some proposed new supports of traceability***

Participants were shown five pictures of food products carrying four different supports of traceability:



Labelling for fresh products non-packaged



Bar Code for fruits or vegetables



Laser printed information on the product about origin, date and set of processing



Radio Frequency Identification (RFID)



#### *4.1. Labelling for fresh products non-packaged*

All participants noticed the “Label Rouge” on the fish but none of them were willing to eat it because they don’t like the fact that the labelling is directly stuck on the fish. They were wondering what is the organism behind the “Label Rouge”? Who give the permission to have it? And under what conditions? The only benefit found by participants was that “Label Rouge” implies a good quality product (quality label), that is better controlled, which gives them confidence. Participants also mentioned some disadvantages in this support, like the missing of important information as the fishing date, is it a wild/bred fish; the label can be removed easily and placed on another product (fraud). And one of the participants said: ‘*What if we want to buy a piece of fish?*’

Concerning the willingness to pay for this fish; at first, participants were totally against the idea of paying more for it. But then some of them said that “Label Rouge” is linked to higher quality, which means higher price (especially for a fresh product like fish). So, at the end, some were ready to pay few euros more if there is a certified indication of quality that they can trust.

#### *4.2. Bar Code for fruits or vegetables*

Participants had very negative impression about this support ‘It is weird’. They were wondering what is its utility? What is it for? Who put it? How can we read it? Is it only to have the information about the price (because usually bar code is connected to price in consumers’ minds)? In general, they all prefer a normal labelling and privilege their regional products. They prefer to have confidence in the shopkeeper. And when asking them about the ability to scan this product at home using the Internet; they were all against it, saying that it is too late to scan it after buying it! Still, two advantages were found in this support: this way of labelling will limit the frauds because it cannot be modified or moved from one product to another and it is a more ecological label than the actual ones because there is no plastic. No participant is ready to buy this product except for two who are willing to, if only they have more information about the pesticides for example.

#### *4.3. Laser printed information on the product*

The first thing the participants noticed was “USA” and they had directly a very negative impression on it because they prefer French fruits and because imported fruits have lots of problems in transportation. Apart from the origin, they felt that it’s a shocking technology,

scary, bothering, useless and not attractive at all. They noticed that the fruit supported well the laser and they were suspecting that the fruit was maybe genetically modified. Only one person was OK with it, but only knowing that a pear can be peeled. Others said that they usually base their purchase of fruit on taste; so, if this pear is tasty, they are ready to buy it. Either ways, participants couldn't find any benefits to this support. In general, no participant was willing to buy this product and they are not willing to pay more for it neither.

#### *4.4. Radio Frequency Identification (RFID)*

After explaining the concept of this support, participants started wondering about the individual liberty, freedom and privacy; one of them even said '*They will follow us till our fridge!*'. They are sceptical about it, even if they have the opportunity to turn it off after buying it. It is useless, sophisticated a lot, and they think that inventors pushed the button too far this time! It was like a shock for them; they need to think more about it, they need to be more informed. They feel that nowadays everything is in information science and high technology; they prefer the way Leclerc managed its problems when faced with the defected minced meat. Some of the participants were wondering how the consumers would be able to know the freshness and other information of the product? Others were worried about the very high cost of this new technology. The only advantage found for this support is to help having a better stock management for the enterprises. No one was willing to pay for this product. Moreover, they were wondering why consumers must pay when this technology is to help the enterprises in their work (especially in making economies)! (*see Annex 2, Table 5*)

#### *4.5. Consumers' propositions of new traceability systems*

Not all the participants were excited about the idea of these new systems and new technologies of traceability. Some of them think that consumers' problems can be solved if they go back shopping from the farmer next door. Therefore, this part of participants wants to keep the good old way of labelling and to have more confidence in people who are experts in their jobs. The other part of participants proposed: a digital label in front of each crate, a digital board with all the necessary information, an interactive information in the caddie and a scanner for bar codes in the caddie.

To conclude, the most preferred and the most familiar support was the labelling of the fish; while the most rejected ones were the laser and the RFID because these two supports shocked and scared the participants. And that's why they prefer the labelling they are used to. In

addition, participants had like nostalgia to the past, when everyone used to have a garden and when they used to buy their food products from farms. We noticed that there was a willingness to pay more *only* for higher quality but not for traceability *'per se'*.

### **Conclusion: Perspectives and limits**

Food choices are the result of heuristics based on trust and confidence. But it's been years now (after many food crisis) that these two concepts, which used to be common, have become risky. And consumers found their selves obliged to revise their automatism and to turn to information search and inference (Dandouau, 2001). One of the methods to answer consumers' demand for more information is labelling, which is a device by which consumers' uncertainty can be reduced. The labelling helps decreasing the perceived risk, however, it has to be understandable and communicated by a credible and reliable organism. Moreover, labels increase the transparency of the product quality and avoid as much as possible consumers' disappointment after the purchase (Grunert, Juhl and Poulsen, 2001).

Other methods to follow the new consumers' tendency were to enforce laws about controls and hygiene measures. Recently there has been the mandatory implementation of traceability in all agribusiness since 1<sup>st</sup> January 2005 and the new food "hygiene package" beginning 1<sup>st</sup> January 2006. The definition of quality in the food sector is currently at the centre of numerous debates both in Europe and in North America. As this sector became more industrialized, an implicit consensus regarding quality indicators (criteria) was formulated; however, during the last 10 years, and particularly following the multiplication of food safety crisis, that initial consensus has become highly tenuous. Quality notion and consumers' food anxiety are very complex. There is a very strong relation between the evolution of quality and the industrialization of the production. We notice the importance of the search for sanitary security and for the confidence of the consumers in all the stages of the evolution. The consumers are now interested by quality guaranteed and they demand a traceability policy guaranteeing this quality. We thus see the proliferation of the certifications of the official quality signs. The question of the legitimacy of the numerous quality signs is asked because they entail real confusions for the consumers who do not always have the necessary capacity/ability to differentiate amongst those signs (Chazoule and Lambert, 2003). That's what was shown during our focus groups, participants have confused knowledge of origin and quality labels (except for 'Label Rouge'). They were able to remember the names of some labels even though they knew pretty well how to describe them. And after showing the photos

of some labels, participants were able to recognize only the national ones but they had no awareness at all of the existence of European labels, which means that these labels are not effective on the French markets. Even though participants think that the traceability of food products with origin and quality labels is better and more guaranteed, they don't buy lots of labelled food products because of the barriers of their high prices. Moreover, there is a link between the socio demographic criteria of the participants and their willingness to buy labelled food products. The food crises made of the food sanitary safety a concern of all the population. The uncertainty and the concern entail a need of reinsurance of the consumers. These are sensitive to the authenticity and to the typicality of products. The quality sign, allowing valuing these products, is taken into account in the process of purchase according to its credibility and the hedonic and emotional mechanisms by the consumer. Labelled products bring social, emotional, psychological and symbolic values to the consumer. These, more important than the functional, sensory and contextual values, determine the choice of a product (Aurier and Sirieix, 2004; Giraud and Trigui, 2005). Origin was one of the most important elements quoted by the participants and there was an obvious preference for national and regional products because food products are not just eaten for their concrete benefits, but also for their hedonic attributes. Eating or buying food products with region of origin labels offer these attributes to consumers because they identify themselves with the region of origin of food products. Consumers use the region-of-origin cues to make inferences about the regional product quality.

Traceability is a well-known notion by the participants; they mostly related it to the origin and the provenance of the product. The utility of traceability is only felt in case of a problem with a defected product and it is mostly related to safety. The level of concern about traceability depends on the product category and on the shop fame. Also, different levels of traceability were expected by participants depending on the type of the product when we experiment their expected level of information with two different types of food: honey and meat. Participants showed a willingness to pay *only* of an improved quality of food and not for traceability 'per se'. Participants want to have more precise origin for all food products and clearer labels. They feel that they are not sufficiently informed about traceability. For them, traceability should be automatic and not necessarily present. They want the strict minimum information on the product with a guaranteed label that they can trust. The experiment of showing participants new supports of traceability prove that consumers are still not ready for this kind of sophisticated systems. They need to be informed more and to be more in touch with what is

happening on the markets. Here, there is a huge work to do to communicate more with the consumers and to create links between producers and technicians and consumers.

The findings of this study have important implications for the managers of food and agribusiness firms who are in the process of implementing traceability systems, and for food industry decision makers and government officials who provide primary oversight for food safety laws and regulations. However, this paper is based on an exploratory study; it is based on the qualitative results of focus groups and a French literature review. Focus groups method is a good often used technique for collecting qualitative data; but at the same time, it has some limitations similar to those of other research techniques that employ human beings (e.g. representative samples, interviewer bias, driven by researcher's interests...), statistical estimation of its collected data is not possible and not all generalization is appropriate (Morgan, 1997). Future studies (laddering of means end chains and conjoint analysis of trade off) are planned in the work calendar of TRACE to confirm these results and to develop them.

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## ANNEXES

### Annex 1. Samples ranking (see §3.3)

**Table 3: Participants ranking of honey samples**

Participants	Rank			
	1	2	3	4
1	Organic (+foreign origin)	Regional honey	Strong brand	No frills
2	Strong brand	Organic (+foreign origin)	Regional honey	No frills
3	Organic (+foreign origin)	Regional honey	Strong brand	No frills
4	Strong brand	Regional honey	Organic (+foreign origin)	No frills
5	Regional honey	Organic (+foreign origin)	Strong brand	No frills
6	Strong brand	Regional honey	Organic (+foreign origin)	No frills
7	Strong brand	Regional honey	Organic (+foreign origin)	No frills
8	Strong brand	Organic (+foreign origin)	Regional honey	No frills
9	Regional honey	Strong brand	Organic (+foreign origin)	No frills

**Table 4: Participants ranking of beef meat samples**

Participants	Rank			
	1	2	3	4
1	Beef with regional label	No frills	Strong branded beef	Organic beef
2				
3	Beef with regional label	No frills	Strong branded beef	Organic beef
4	Strong branded beef	Beef with regional label	No frills	Organic beef
5	Strong branded beef	Beef with regional label	No frills	Organic beef
6	Beef with regional label	Organic beef	No frills	Strong branded beef
7	Beef with regional label	No frills	Organic beef	Strong branded beef
8	Beef with regional label	No frills	Organic beef	Strong branded beef
9	Strong branded beef	Beef with regional label	No frills	Organic beef

## Annex 2. Presentation of traceability supports

**Table 5: Participants' perception of Traceability Supports**

Support	General Impressions	Benefits	Disadvantages	Reasons of (no) purchase	WTP/NWTP* (/kg)
Labelling for fresh products non-packaged	Label Rouge => quality guarantees; Need to know the organism and the conditions behind "Label Rouge"?	Quality label => controlled product => more confidence	Missing information: date of fishing, bred/wild fish; label can be removed easily; what if one wants to buy just a piece of the fish?	Not willing to eat	(12€/kg) Label Rouge => higher quality => higher price WTP: 2-8 € more
Bar Code for fruits or vegetables	Very negative impression ('weird'); Prefer normal labelling and privilege regional products; Prefer to have confidence in shopkeepers. Against scanning it at home	Sure that labelling cannot be modified (limit fraud); it is more ecological (no plastic used)	What is its utility? who put it? How can we read it?		(1.5€/kg) NWTP WTP more if they have more information about pesticides and the treatments
Laser printed information on the product	First thing noticed "USA" => very negative impression; prefer French products; Shocking technology, scary, bothering, useless, not attractive; suspecting that the fruit was genetically modified because it supports very well the laser; it is better if the fruit can be peeled	No benefits		Willing to buy it if it tastes good Not willing to buy because no benefits are seen	(3€/kg) NWTP
Radio Frequency Identification (RFID)	Wondering about the individual liberty, freedom and privacy; sceptical about it (even if they have the opportunity to turn it off); too sophisticated; need more time and more information to think about it; wondering how one can read the information on the chip	Help the enterprises to have a better stock management	Worried about the very high cost of this technology	Not willing to buy it	NWTP (why to pay more for something that is only useful for enterprises)

\* Willingness to pay/No willingness to pay