

Labelling information demanded by European consumers and relationships with purchasing motives, quality and safety of meat

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Abstract

Meat labelling can be an important way of informing the consumer on the quality attributes of meat. However, the type of information consumers demand is not well known and there is a lack of consumer-oriented information. Thus, meat labelling requires special attention. The objectives of this paper were: to identify the type of information that is most demanded by European consumers on beef and lamb labelling; to analyse the relationships between the importance of informational cues and other aspects concerning consumer attitudes towards meat consumption and meat quality, and socio-demographic characteristics; and to identify groups of consumers according to their labelling preferences. The information cues considered most important related to the deadline for meat consumption and the origin of meat. Other important cues were nutritional information, maturation time, name of cut and, especially for beef consumers, information on the system of production and on the traceability and the quality control of the meat. Some groups or segments of consumers were identified that had significant differences in relation to the type of information demanded, purchasing motives, quality preferences, sources of information on quality they trusted most and socio-economic features. They could be briefly profiled as: *'quality/safety orientated'*; *'traditional'*; *'quality unconcerned/ convenience-driven'* and *'origin motivated'* consumers.

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1. Introduction

Labelling can perform many different functions. Kotler (1997) mentioned the identification, grading, description and promotion of products. Altmann (1997) added to these functions that of branding and labelling of food products which aim to differentiate products from those of competitors by enlarging product attractiveness or assuring the consumer a certain level of quality. Van Trijp, Steenkamp, and Candel (1997) pointed out that quality labelling is a means to add value to the food product. For Caswell and Mojduszka (1996) other roles of food labels include influencing product design, advertising, consumer confidence in food quality and consumer education on diet and health. Referring to red meat and red meat products,

Corcoran et al. (2001) stated that labelling can be a means to restore consumer confidence in these products, which have suffered from a tarnished image. Finally, Becker (2000a) affirmed that labels act as a public surveillance assurance because labelling regulations create and limit the franchise to advertise.

All this functions can be considered under several approaches: the potential of labelling as a marketing tool, the relevance of labelling from an industry viewpoint and the potential benefits of labelling to the consumer (Verbeke & Viaene, 1999).

Consumers are becoming more demanding about product quality (Dalen, 1996; Steenkamp, 1990) and the perception of food quality, in particular meat, is changing rapidly (Grunert & Valli, 2001; Issanchou, 1996; Manion, Cowan, & Gannon, 2000). Recent research has shown that consumers have considerable difficulties in forming meat quality expectations (Grunert, 2001). It has been widely reported that the increasing importance

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given to credence quality attributes, that is those qualities that cannot be ascertained even after normal use of the product (Steenkamp, 1990), is a consequence of increasing concerns among consumers on safety, health, convenience, locality, ethical factors, etc. (Anwander & Badertscher, 2001; Corcoran et al., 2001; Harrington, 1994; Issanchou, 1996; Latvala & Kola, 2001; Wandel & Bugge, 1997). These credence attributes mainly focus on the quality of the production process (extrinsic characteristics of meat) and not on the product itself and often there are no relevant or appropriate informational cues available (Becker, 2000b). Extrinsic cues, as defined by Olson and Jacoby (1972), are the dominant means of informing the consumer on the credence quality attributes of meat (Becker, 2000b), and if credence quality attributes are confirmed by trusted extrinsic cues (e.g. label information) they become the search quality attributes available at the time of shopping.

On 17 July 2000 the European Parliament and the Council of Agricultural Ministers agreed on a new regulation that obliged the EU beef industry to label the origin of beef and beef products being sold (EC Regulation 1760/2000). In this way, consumers benefit from EU-wide compulsory beef labelling rules. Apart from the compulsory label system, a voluntary scheme also permits other quality indications to appear on the labels of beef and beef products.

But there are problems or particular challenges related to meat labelling associated with the natural variability and the delivery of consistent quality. Furthermore, the fact that meat is normally unbranded and sold in small portions that often are cut and prepared by the retailer or butcher adds to the problem (Verbeke & Viaene, 1999).

Other authors have pointed out that consumers do not use or do not completely understand food labels (Capps, 1992) and that there is a lack of consumer-oriented information in labels (Issanchou, 1996; Verbeke & Viaene, 1999; Wandel, 1997). Little research is available about how consumers use food labels (Padberg, 1992) or the type of information consumers seek (Bernués, Olai-zola, Maza, Manrique, & Corcoran, 2001; Wandel, 1997). Van Trijp et al. (1997) stress that labeling in itself is not sufficient and needs to be supported by promotional strategies aimed at establishing label awareness. In the case of meat, Goldberg (1992) indicates that its promotion can be problematic because some features present a negative image for consumers and therefore, while labelling provides a very useful means to inform consumers, it requires special attention.

The objectives of this paper are: firstly to identify the type of information that is most demanded by European consumers to appear on beef and lamb labels; secondly to analyse the relationships between the importance given to informational cues and purchase motives, quality preferences, sources of information on

quality and socio-demographic characteristics of consumers; and finally to identify groups or segments of consumers according to their preferences in terms of meat labelling.

2. Methodology

2.1. Sampling

A sample proportionally stratified by geographical area, size of place of residence and type of outlet was utilized to obtain information in five European regions in England, France, Italy, Scotland and Spain.¹ The survey was carried out between October 1999 and January 2000. Data were obtained from personal interviews at the place of purchase with persons responsible for the meat purchases in the household. The number of interviews and the animal species considered in each study area, can be seen in Table 1.

2.2. Questionnaire and variables

Exploratory research was carried out in all regions studied, using qualitative focus group investigations (Corcoran, et al., 2001) and expert meetings with meat industry representatives.² The results of this exploratory phase served as the main source of input to the quantitative questionnaire.

Respondents were asked to report on the relative importance of nine types or items of information that could appear on labels for beef/lamb (Table 2). These were: brand name; origin of meat; nutritional information; maturation (hanging time); deadline (consume by); cooking recommendations; name of cut; information on the system of production (e.g. grass feed, environmental friendly production, etc.); information on traceability and quality control. Data were collected using a scale of three categories: 'not important', 'important' and 'very important'.

Respondents were also asked about (Table 3):

- the importance of a number of purchasing motives (factors that were important when deciding the type of meat bought): considerations involving family and children; nutrition and health; safety; ease of purchase; ease of cooking; knowledge of preparation; tradition; price; satisfaction obtained from meat; and meal occasion;
- the importance of seven characteristics (extrinsic attributes) thought to contribute to quality in

¹ The areas of study and animal species considered were determined by the SMEs participating in a research project funded by the European Commission (see Acknowledgements).

² Representatives of SMEs involved in the project.

Table 1
Number and percentage of observations in the sample per region

Country	Area of study	Beef	Lamb	Total
England	Cotswold (south-west of England)	–	448	448 (19.58%)
France	Languedoc-Roussillon (south-east of France)	–	308	308 (13.46%)
Italy	Italy	505	–	505 (22.07%)
Scotland	Scotland	500	–	500 (21.85%)
Spain	Aragón and Lérida (north-east of Spain)	227	300	527 (23.03%)
Total		1232 (53.85%)	1056 (46.15%)	2288 (100%)

Table 2
Focus variables used in the Principal Components Analysis

<i>Focus variables: items of information on the label^a</i>	
Brand name	Cooking recommendations
Origin of meat	Name of cut
Nutritional information	System of production
Maturation time	Traceability/quality control
Deadline (consume by)	

^a Classes were: 'not-important'; 'important'; 'very important'.

beef/lamb: origin of meat/region of production; environmentally friendly production; animal welfare concerns; animal feeding; animal breed; processing and packaging; and storage. The majority of these, especially those referring to the production processes, are credence quality attributes;

- the importance of different sources of information used to assess meat quality in the shop such as: the retailer/ supplier; direct assessment (colour, fat, etc.); label/ brand; and price.
- the consumption trend over the previous 5 years.

Socio-demographic characteristics were also gathered to profile groups of consumers by: age; sex; socio-economic status; place of residence (rural vs. urban); family size and presence of children in the family (Table 3).

2.3. Data analysis

Beef and lamb consumer samples were considered separately. A frequency analysis by region was performed on the main variables to assess the relative importance for consumers of the different types of labelling information.

Multivariate statistical methods were used to analyse the data matrix and to present the results in an easily understandable way (Næs, Baardseth, Helgesen, & Isaksson, 1996). Relationships between the types of information on the label were investigated using Principal Component Analysis (PCA) with Varimax rotation. To avoid response bias, mean-center values were obtained for each individual by assigning scores to each category as follows: 'not important' = 0, 'important' = 1, 'very important' = 2. Then, the mean score across the

Table 3
Variables and classes used in the Chi-square analysis

<i>Extrinsic quality attributes^a</i>	
Origin/region of production	Animal breed
Environmentally friendly	Processing/packaging
Animal welfare	Storage
Animal feeding	
<i>Purchasing motives^a</i>	
Family and children	Knowledge of preparation
Nutrition and health	Tradition
Safety	Price
Ease of purchase	Satisfaction obtained
Ease of cooking	Meal occasion
<i>Sources of information on quality: cues^a</i>	
Retailer/supplier	Label/brand
Direct assessment (colour, fat, etc.)	Price
<i>Socio-demographic variables</i>	
Age	Population: rural/urban
18–35 years old	< 5,000
36–65 years old	5000–50,000
> 65 years old	> 50,000
Sex	Family size
Male	1–2 members
Female	3–4 members
	> 4 members
Socio-economic status	Presence of children
Low	Yes
Medium	No
High	
<i>Consumption trend</i>	
Consumption of meat in last 5 years	
Decrease	
Increase	
The same	

^a Classes were: 'not-important'; 'important'; 'very important'.

seven attributes was calculated and subtracted from the individual's importance score on each attribute. Factors explaining heterogeneity in the consumer samples were obtained in this way.

A non-hierarchical Cluster Analysis with nearest centroid sorting was carried out to classify consumers, using the co-ordinates of the observations (consumers) to the main factors obtained from the PCA. The number of clusters was obtained on the basis of the R^2 obtained

and of a strong increment produced in the Cubic Criterion of Clustering and PseudoF values (SAS, 1994).

Finally, a Chi-square analysis was carried out crossing the groups of consumers with the other variables: purchasing motives, extrinsic quality attributes, sources of information on quality, consumption trends and socio-economic variables.

3. Results

3.1. Importance of different types of information on beef and lamb labels

Fig. 1 represents the profile analysis of the average importance that different types of label information have for beef and lamb consumers in the regions of study.

The types of information most demanded were deadline or 'consume by' information (86.7 and 86.2% of respondents rated this attribute as 'important' or 'very important', for beef and lamb respectively) and origin of meat (91.5 and 84.4%). Conversely, brand name (53.0 and 46.6%) and cooking recommendations (41.3 and 38.0%) had the lowest importance. The rest of the types of information held an intermediate position. In the case of beef consumers, it can be pointed out that the information on the system of production, and on the traceability and system of quality assurance, together with the cut name, had a comparatively higher importance than

information on nutrition and time of maturation. For lamb consumers these information cues were similarly regarded.

However, there were considerable differences between the areas of study. Italian and French consumers attached comparatively more importance to the production system, traceability and quality controls. Scottish and English consumers expressed a lower interest in labelling information in general, except for origin of beef for the Scottish. For the Spanish beef and lamb samples, maturation and nutrition information were very important together with origin and deadline.

To identify which variables better explained differences among consumers, two PCAs were performed for the beef and lamb consumer samples respectively. The contribution of the labelling variables to the main factors obtained in the PCAs and the variance explained are shown in Table 4.

The first five factors explained a high proportion of original variance and had an eigenvalue greater than one. Globally, they explained 70.1 and 70.8% of the variance in the beef and lamb samples respectively. In Fig. 2, the extrinsic attributes are represented in the three-dimensional space defined by the three main factors.

Beef factors can be defined as follows:

1. importance of cooking recommendations and name of cut (as opposed to traceability and quality control);

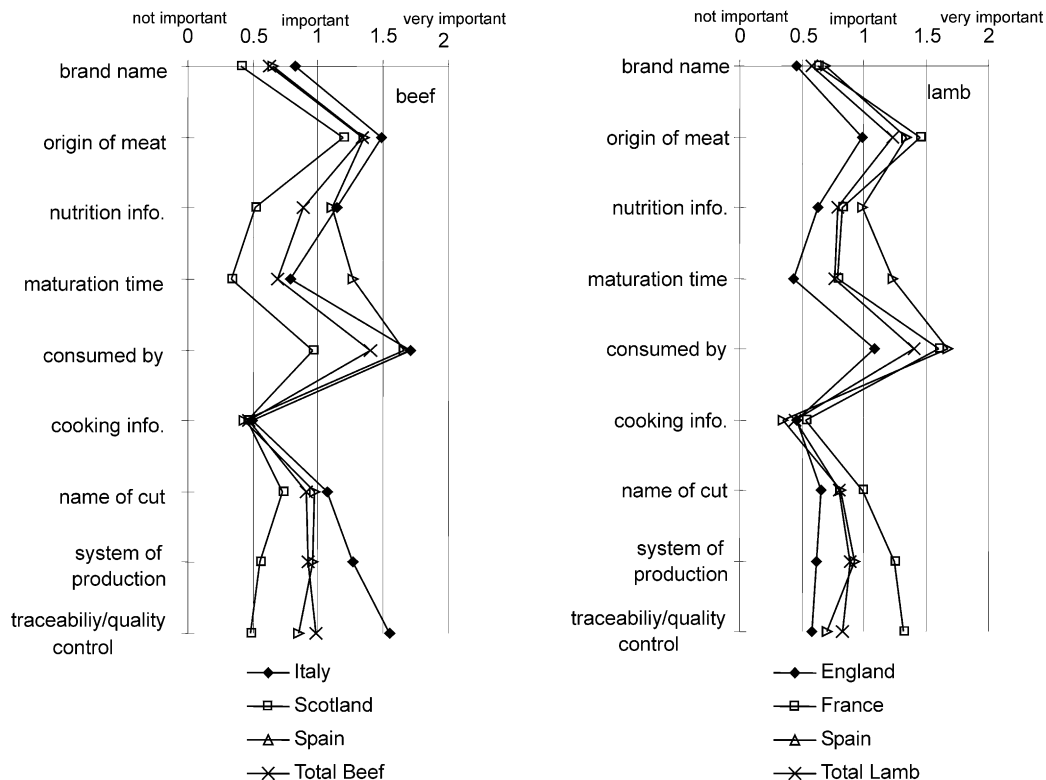


Fig. 1. Profile of importance of factors indicating quality of beef and lamb in the label.

Table 4
Contribution of the main variables to the first five Factors obtained in the PCAs for beef and lamb

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
<i>Beef</i>					
Brand name	−0.066	−0.082	0.893	−0.174	−0.020
Origin of meat	−0.061	0.015	−0.014	−0.021	0.975
Nutritional information	−0.288	−0.545	0.044	0.275	−0.194
Maturation time	−0.033	−0.110	−0.148	0.853	−0.021
Deadline (consume by)	−0.215	−0.482	−0.471	−0.418	−0.047
Cooking recommendations	0.665	−0.246	0.163	−0.265	−0.151
Name of cut	0.764	0.180	−0.197	0.096	−0.015
System of production	−0.262	0.768	−0.062	−0.015	−0.114
Traceability/ quality control	−0.512	0.275	−0.286	−0.319	−0.307
% of variance	18.12	14.2	13.71	12.61	11.46
<i>Lamb</i>					
Brand name	−0.687	−0.215	0.071	−0.256	−0.456
Origin of meat	−0.071	−0.209	0.841	0.072	0.055
Nutritional information	0.112	0.742	−0.014	0.016	−0.104
Maturation time	−0.158	0.704	−0.048	−0.248	0.097
Deadline (consume by)	−0.072	−0.057	0.032	−0.084	0.930
Cooking recommendations	−0.310	−0.257	−0.672	0.226	0.052
Name of cut	0.058	−0.182	−0.074	0.867	−0.073
System of production	0.696	−0.034	0.166	0.014	−0.141
Traceability/ quality control	0.588	−0.437	−0.117	−0.447	−0.121
% of variance	17.31	16.64	13.29	12.34	11.26

- importance of system of production (as opposed to nutritional information and deadline);
- importance of brand (as opposed to ‘consume by’ information);
- importance of maturation of meat (as opposed to deadline);
- importance of origin.

Lamb factors can be defined as follows:

- importance of system of production and traceability and quality control (as opposed to brand);
- importance of nutritional and maturation information (as opposed to traceability/ quality control);
- importance of origin (as opposed to cooking recommendations);
- importance of cut name (as opposed to traceability/quality control);
- importance of ‘consume by’ information (as opposed to brand name).

3.2. Consumer types according to labelling preferences

Four groups of consumers were obtained for both the beef and lamb samples from the Cluster Analysis. Purchasing motives, attitude towards extrinsic quality attributes, sources of information on quality, and socio-demographic characteristics that explained relevant

differences between groups (Chi² analysis) are shown in Tables 5 and 6.

3.2.1. Beef consumer types

Group 1 of beef consumers was characterised by a comparatively high level of demand for information on the system of production, traceability/ quality control and cut name on the label. Conversely, brand, nutritional information and cooking recommendations were not considered important. These consumers attached greater importance to health and safety of meat, ‘tradition’ and ‘occasion’, as purchasing motives, but less to ‘ease of cooking’. Most of the extrinsic attributes of meat were highly regarded, especially those referring to origin and the system of production (environmental and welfare implications, animal feeding). On average, brand was a less important source of information on quality.

Group 2 showed the highest interest for most types of information, except for name of cut and in particular, cooking recommendations, which was not important at all. Information on production systems and especially on traceability and quality control of meat was highly demanded, as were other information on items such as brand name, origin, nutritional information, maturation time and deadline. All purchasing motives, particularly family/children, nutrition/health and safety, were comparatively important for Group 2 consumers, except for ‘ease of cooking’ and price. Similarly, all extrinsic attri-

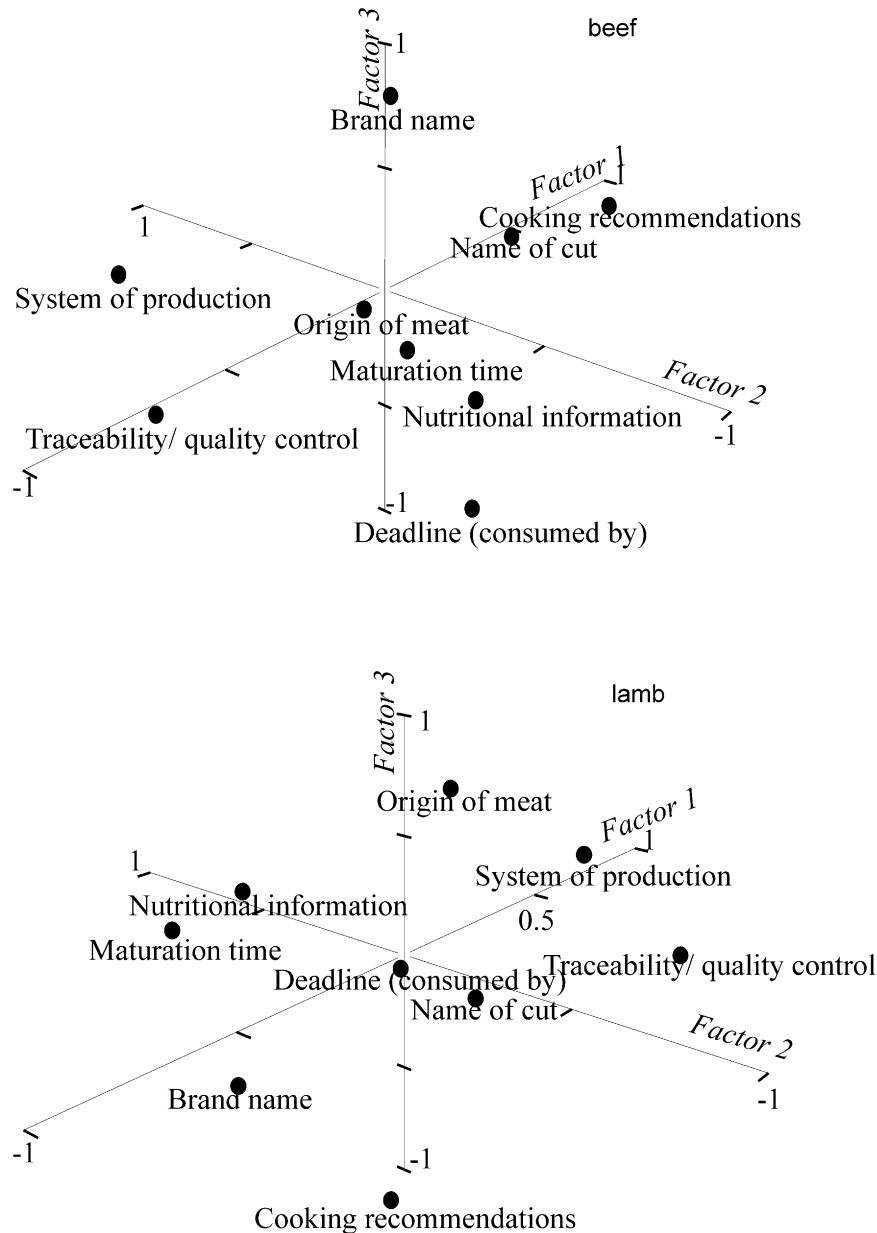


Fig. 2. Location of the variables in the three-dimensional space defined by the three main factors of the PCAs. Note: for the correct interpretation of the graphs is important to focus on the direction of variables from the origin, the distance between variables do not have meaning.

butes of beef were much appreciated. It is highly significant the low importance attached to the retailer or supplier as a source of information on quality and the high importance attached to 'own assessment' and the label or brand of the meat.

Groups 1 and 2 showed further similarities. Both groups showed a decrease in the consumption of beef over the five years prior to the study being carried out. In addition, consumers of these groups tended to be young or middle age, live in big cities and have a medium or high economic status.

Group 3 expressed a very low interest in most types of information, except for brand name and cooking recommendations that were comparatively important.

Consumers in this group were also unconcerned about most purchasing motives, and in particular on safety, although price and 'ease of cooking' had an intermediate importance. They attached low importance to all extrinsic quality attributes of meat. It is significant that these consumers paid attention both to retailer and label/brand as sources of information on quality, but did not trust in their own assessment of quality. These consumers, who had maintained a consistent level of beef consumption, usually resided in middle-sized cities and belonged to 1–2 member families.

Group 4 was characterized by a high level of importance attached to nutritional information and deadline (consume by) of meat, and a low level of importance to

Table 5
Main characteristics of the groups obtained in the Cluster Analysis for the beef sample

	Group 1 <i>n</i> = 253 (20.5%)	Group 2 <i>n</i> = 229 (17.3%)	Group 3 <i>n</i> = 399 (32.4%)	Group 4 <i>n</i> = 367 (29.8%)
<i>Type of information in label^a</i>				
Brand name	0.12	0.59	0.40	0.18
Origin of meat	0.72	0.82	0.57	0.66
Nutritional information	0.32	0.66	0.32	0.53
Maturation time	0.37	0.43	0.24	0.39
Deadline (consume by)	0.72	0.83	0.43	0.89
Cooking recommendations	0.20	0.08	0.34	0.24
Name of cut	0.60	0.32	0.48	0.40
System of production	0.75	0.75	0.33	0.24
Traceability/ quality control	0.68	0.81	0.26	0.43
<i>Purchasing motives^b</i>				
Family/children	o	++	–	+
Nutrition/health	+	++	–	+
Safety	+	++	--	+
Easy cooking *	–	o	o	o
Tradition	+	+	–	o
Price *	o	–	o	+
Occasion *	+	+	–	o
<i>Extrinsic attributes^b</i>				
Origin/region of production	++	++	–	–
Environmentally friendly	+	++	–	–
Animal welfare	++	++	–	–
Animal feeding	++	++	–	o
Animal breed	o	+	o	–
Processing/packaging	+	++	–	o
Storage	+	++	–	+
<i>Sources of information^b</i>				
Retailer/supplier	o	--	+	+
Direct assessment	o	++	–	+
Label/brand	–	++	+	–
<i>Socio-demographic characteristics</i>				
Region/country	More in Italy, less in N-E Spain and Scotland	Many more in Italy, few in Scotland	More in Scotland, less in Italy and N-E Spain	More in N-E Spain, less in Scotland and Italy
Age *	Middle age, few young people	Young and middle age		
Socio-economic status *	High	Medium and high		Low
Place of residence	Big cities	Big cities	Medium-size cities	Rural areas and medium-size cities
Family size			Small families	Big families
<i>Consumption trend</i>				
In last 5 years	Decrease	Decrease	The same	Increase

^a Average indicators of the group calculated as: 0 = not important; 0.5 = important; 1 = very important.

^b Higher importance than average = '+'; less importance than average = '-'; average importance = 'o' $P=0.001$, except indicated with * $P=0.05$.

brand name and information on system of production, traceability and the system of quality control. They attached importance to family/children, nutrition/health, safety and price when buying meat, but did not rate quality attributes, except for the way meat was stored. They trusted the retailer and their own assessment when trying to assess the quality of the meat, but not the label or brand. These consumers tended to have low socio-economic status, live in rural areas or middle-size cities and have larger families.

As indicated above, socio-demographic characteristics helped explain differences between groups of beef and lamb consumers. The most important of these were nationality, place of residence ($P=0.001$) and family size, but age and socio-economic status also contributed to differentiate the segments of beef consumers.

3.2.2. Lamb consumer types

Lamb consumers in Group 1 were characterised by a comparatively high demand of most types of informa-

Table 6
Main characteristics of the groups obtained in the Cluster Analysis for the lamb sample

	Group 1 n=415 (39.3%)	Group 2 n=170 (16.1%)	Group 3 n=262 (24.8%)	Group 4 n=209 (19.8%)
<i>Type of information in label^a</i>				
Brand name	0.23	0.24	0.48	0.18
Origin of meat	0.77	0.43	0.73	0.29
Nutritional information	0.50	0.61	0.24	0.19
Maturation time	0.42	0.71	0.27	0.16
Deadline (consume by)	0.75	0.73	0.70	0.56
Cooking recommendations	0.12	0.27	0.20	0.40
Name of cut	0.47	0.33	0.35	0.37
System of production	0.68	0.34	0.21	0.33
Traceability/ quality control	0.62	0.22	0.20	0.42
<i>Purchasing motives^b</i>				
Family/children *	o	+	o	–
Nutrition/health	+	+	–	–
Safety	++	o	–	–
Easy cooking *	o	+	+	–
Satisfaction *	+	–	o	–
<i>Extrinsic attributes^b</i>				
Origin/region of production	++	–	+	–
Environmentally friendly	++	–	–	–
Animal welfare	++	o	–	–
Animal feeding	++	o	–	–
Animal breed	+	o	–	–
Processing/ packaging	+	+	–	–
Storage	+	+	–	–
<i>Sources of information^b</i>				
Retailer/supplier *	+	o	o	–
Direct assessment	+	o	o	–
Label/brand	+	–	o	–
<i>Socio-demographic characteristics</i>				
Region/country	More in S-E France, less in S-W England	More in N-E Spain, less in S-E France	More in S-W England and N-E Spain, very few in S-E France	More in S-W England, less in N-E Spain
Place of residence	Big cities, few in medium-size cities	Rural areas	Medium-size cities	Few in rural areas
Family size *		Big families		Small families

^a Average indicators of the group calculated as: 0 = not important; 0.5 = important; 1 = very important.

^b Higher importance than average = '+'; less importance than average = '-'; average importance = 'o' $P=0.001$, except indicated with * $P=0.05$.

tion on the label, especially origin, deadline, name of cut, information on the production system, the traceability and quality control. Conversely, cooking recommendations were not important. These consumers were very concerned about nutrition and health, and specially safety of meat; satisfaction obtained was also an important purchasing motive. All extrinsic attributes of lamb were highly regarded, especially those referring to origin and the system of production (environmental and welfare implications, animal feeding). All sources of information on quality were quite important to these consumers, who tended to live in big cities.

Consumers in Group 2 attached great importance to information referring to the nutritional composition and freshness of meat (maturation time and deadline), whereas the interest in other information cues was low. Principal purchasing reasons were family/children, nutri-

tion/health and also 'ease-of-cooking'. These consumers showed a comparatively low interest in extrinsic quality attributes which referred to the origin or production system, but had a high interest in processing, packaging and storage of meat. The label/brand was not a trusted source of information on quality for these consumers who tended to live in rural areas and belong to big families.

Group 3 showed an interest in information on brand name, origin and deadline of meat, whereas other informational cues were not considered, especially those which referred to the system of production, traceability and quality control. Ease-of-cooking was an important purchasing motive, whereas nutrition, health and safety were not. Only origin was considered an important quality attribute of meat, other attributes being comparatively unimportant. These consumers generally resided in middle-size cities.

Consumers of Group 4 attached comparatively high importance to cooking recommendations but low or very low to other informational cues on the label. All purchasing motives, extrinsic quality attributes and sources of information of quality were given very low consideration by these consumers who generally belonged to 1–2 member families.

As happened with beef consumers, significant differences were found between groups in relation to nationality, place of residence and family size.

4. Discussion

4.1. Informational cues on beef and lamb labels

No major differences were found between the importance of information cues demanded by beef and lamb consumers; only the information about the traceability of meat and meat products and the system of quality control seemed to be more appreciated by beef consumers.

In all European regions studied, the type of information most in demand referred to the origin or region of production of meat and deadline or 'consume by' information. Origin of meat has been often pointed out as a credence quality attribute for meat safety (Becker, 1999; Henson & Northen, 2000; Latouche, Rainelli, & Vermersch, 1998), although other authors did not find this relationship (Bernués, Olaizola, & Corcoran, *in press*). The importance consumers give to this quality cue is also linked to consumers' regional identity that is the value of 'locality' or the 'sense of belonging', as expressed by Van der Lans, Van Ittersum, and De Cicco (2001).

Information on 'deadline' is directly related to the freshness of meat, which constitutes a major cue when searching for quality in the shop and anticipating experience quality at consumption time. Data collected by AGB/Europanel 1992 showed that freshness was found to be one of the main criteria for evaluating choice of food products (Steenkamp, 1997). Freshness has been also pointed out as a major cue in assessing the safety of meat in six European countries (Cowan, 1998; Henson & Northern, 2000).

Nutritional information, maturation time and 'name of cut' held an intermediate position of importance. Information on the nutritional content of food has received much attention by the research community in the USA (Burton & Andrews, 1996; Nayga, 1999; Wang, Fletcher, & Carley, 1995), where it is seen as a basic way of assisting choice for consumers. However, in Europe consumers appear to be more aware of the nutritional properties of meat. Maturation time is relevant from the point of view of the organoleptic features (tenderness and flavour) when consuming the meat

(especially beef), but in Mediterranean countries it is also considered as a cue to evaluate freshness in meat. The name of the cut is recognised as an efficient quality indicator, which is also reflected in the price of different quality cuts.

Information cues on the production process were also highly relevant for many consumers. Increasingly, there are consumer concerns in relation to the impact intensive rearing methods have on the environment, animal welfare and the safety of food products (Harrington, 1994; Issanchou, 1996). In Norway for example, after the presence of additives the cultivation process was the area where consumers wished for more and better information on food labels (Wandel, 1997). Information on the production system, traceability and the system of quality control of meat could constitute cues to better inform the consumer on credence (safety, health, ethical concerns) quality attributes (Bernués et al., *in press*). In this way credence quality attributes could become search quality attributes because label information may change the status of the quality attribute (Becker, 2000b).

Brand name had little relevance for most consumers. The fact that meat is frequently purchased unbranded and treated as a commodity item, in contrast to other food products, can partially explain the little consideration consumers have for branded meat. Nevertheless, this situation is changing rapidly as new private distributors and producers' own brands appear in the marketplace. From the industry point of view, branding may be an important way to add value to meat, to differentiate one product from another and to escape price competition (Steenkamp, 1997). From the consumers point of view, brands are important quality indicators and facilitate repurchase because they serve as shorthand for previously experienced quality (Grunert, 2001; Nijssen & Van Trijp, 1998). Branding also allows the identification of the responsibility for controlling and delivering the quality characteristics of the meat.

Cooking recommendations were the information type rated lowest in all regions. This could mean either that European consumers consider that they already have a good level of cooking skills or that they obtain this information from other sources, such as the butcher or retailer who can play an active role in informing consumers about quality and types of use for meat cuts.

4.2. Relationships between label information cues, purchasing motives, quality perception, sources of information on quality and socio-demographics

Many differences were found between groups of consumers who had different priorities in relation to meat labeling, meat purchasing and quality demands. The

groups or segments could be summarily profiled as: 'quality/safety orientated'; 'traditional'; 'quality unconcerned/convenience driven' and 'origin motivated' consumers. These profiles were generally identified for both beef and lamb samples and are now discussed in greater detail.

Beef consumers who generically demanded more information on the label (Groups 1 and 2) were those who had reduced consumption of meat. These consumers were much more concerned about the extrinsic quality attributes of meat and considered family/children, nutrition/health, and safety as very important purchasing motives. They were mainly made up of consumers living in big cities with a medium to high socio-economic status.

Groups 1 and 2 could therefore be identified as 'quality/safety orientated' and their reduction in beef consumption could be caused by a lack of trust in the quality and safety properties of meat prompting a demand for more information. Nayga (1999) pointed out that those individuals that place more importance on nutrition are more confident about the information contained in labels. The high demand for informational cues referring the system of production and the quality controls along the production chain is significant.

There were also significant differences between these two consumer types. Group 1 consumers attached little importance to brand name and consequently, did not trust the brand as source of information on quality. Alternatively, Group 2 consumers attached a high level of importance to brand name and therefore trusted the brand. For these consumers 'own assessment' of meat quality was also very important, with information supplied by the retailer/supplier of much lower interest. Age was the socio-demographic feature that best distinguished these two groups. In general younger consumers (Group 2) seemed to pay more attention to brand name and label information than middle aged and older consumers (Group 1); similar findings were obtained by Burton and Andrews (1996) and Nayga (1999).

Group 3 also gave importance to brand name and was the only group that attached significant relevance to cooking recommendations in the label. Other information cues had much lower relevance than the average for all groups. In general purchasing motivations and extrinsic quality attributes were not of concern for these consumers. They trusted the retailer and the label when trying to get information about the products but did not use their own assessment. This profile seems to correspond with 'convenience-driven' consumers, who are not concerned with meat quality or meat safety and want to transfer the responsibility when purchasing beef. They had maintained a steady consumption of beef in the 5 years prior to the study and tended to reside in medium-size cities and belonged to 1–2 member families.

Group 4 represented a more 'traditional' type of beef consumers that cared more about freshness of beef (deadline and maturation time). These consumers attached importance to price when purchasing beef and also to family/children, nutrition/health and safety. But in contrast to Groups 1 and 2, they did not care about extrinsic quality attributes of meat such as origin and production system. They cared about the storage of meat as an attribute that is directly related to freshness. These consumers trusted their butcher and their own evaluation of quality. This was the only group that had increased the consumption of beef in the last five years. They generally had a lower socio-economic status, lived in rural areas or medium-size cities and had larger families.

As for beef Groups 1 and 2, the largest group of lamb consumers (39.3% of the sample) was made up by 'quality/safety orientated' consumers who demanded information about system of production, traceability and quality control of meat. Safety and nutrition/health were the most important factors taken into consideration when purchasing lamb. This group trusted and used quality information obtained from the retailer, direct assessment and brand name more than other groups. Like in the case of beef consumers, they were normally resident in big cities.

Group 2 was very similar to Group 4 of beef consumers. For these 'traditional' lamb consumers only intrinsic cues (referring to nutritional values and meat freshness) were important. Family and nutrition, and health factors were the driving purchasing motives and the only quality attributes considered important were those referring to processing, packaging and storage—attributes that can affect the intrinsic characteristics of meat (nutritional, freshness, etc.). As in the case of beef, consumers here normally resided in rural areas and had larger families.

Group 3 lamb consumers could be identified with 'origin-orientated' consumers, who mainly cared about the region of production of the lamb. This could explain the reason for the importance of brand name, which could also constitute a cue to indicate origin. Other quality attributes and most purchasing motives were not relevant for these consumers.

Group 4 lamb consumers were similar to Group 3 beef consumers. These 'quality unconcerned/convenience-driven' consumers only attached importance to cooking recommendations as an information cue. Purchasing motives, quality attributes and sources of information on quality had no interest at all for them.

Apart from the diverse socio-demographic features mentioned above, the European region was also a significant factor that contributed to explain differences in both beef and lamb samples. This results confirm the importance of cultural differences when considering voluntary labelling schemes and meat

quality issues in general, as other studies have established (Cowan, 1998; Grunert, 1997; Henson & Northen, 2000).

5. Conclusions and implications for the industry

The origin/region of production and deadline (consume by) information for beef and lamb were the most important informational cues for consumers to appear in the label. This was found in all European regions considered in the study.

Other aspects that consumers increasingly want information about are those referring to the system of production, traceability of animals and products, and the quality controls put in place by the industry (quality assurance systems).

This is particularly true for consumers concerned about safety and nutrition/health issues, who generally demanded more information and tended to rely on and use labels more. Thus, quality attributes relating to system of production, traceability and quality control of both animals and products are recognised as indicators for credence quality and therefore reliable and credible information cues on these aspects are increasingly in demand.

Nevertheless, consumers have diverse views on quality and therefore purchasing motives and labelling preferences differ between groups of consumers. The empirical research in this study allowed a small range of consumer profiles showing different labelling preferences. The delivery of consumer-led designed meat products than can be appropriately labelled to target various consumer types, could constitute an opportunity for the industry to better access different segments of the market.

However, awareness of the label is a necessary first condition that has to be created. Van Trijp et al. (1997) stressed that labelling of meat in itself is not sufficient and that promotion is needed in order to create product awareness. Meat labels and advertising need to go together to produce a consistent product image.

Finally, signalling of cues that inform on attributes of a production system that consumers cannot evaluate and verify not only requires appropriate labelling and promotion, but also independent and credible certification to reassure consumers of the quality specifications offered by the product.

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References

- Altmann, M. (1997). Product policy. In D. Padberg, C. Titson, & L. Albisu (Eds.), *Agro-food marketing* (pp. 279–294). Wallingford: CAB International.
- Anwander, P. S., & Badertscher, F. R. (2001). The Swiss market of meat from animal-friendly production. In *71st EAAE Seminar: the food consumer in the early 21st century*, 19–20 April 2001, Zaragoza, Spain.
- Becker, T. (1999). “Country of origin” as a cue for quality and safety in fresh meat. In *67th EAAE Seminar: the socio-economics of origin labelled products in agri-food supply chains: spatial, institutional and co-ordination aspects*, 28–30 October 1999, Le Mans, France.
- Becker, T. (2000b). Consumer perception of fresh meat quality: a framework for analysis. *British Food Journal*, 102(3), 158–176.
- Becker, T. (2000a). To what extent are consumer requirements met by public quality policy? In T. Becker (Ed.), *Quality policy and consumer behaviour in the European Union* (pp. 247–273). Wissenschaftsverlag Vauk Kiel.
- Bernués, A., Olaizola, A., Maza, M. T., Manrique, E., & Corcoran, K. (2001). Etiquetado de las carnes rojas: tipo de información y su importancia para el consumidor europeo. In *Actas del IV Congreso Nacional de Economía Agraria* (pp. 247–273), 19–21 September 2001, Pamplona, Spain.
- Bernués A., Olaizola A., & Corcoran K. (in press). Extrinsic attributes of red meat as indicators of quality in Europe: an application for market segmentation. *Food Quality and Preference* 14(4), 265–276.
- Burton, S., & Andrews, J. C. (1996). Age, product nutrition and label format effects on consumer perceptions and product evaluations. *The Journal of Consumers Affairs*, 30(1), 68–89.
- Capps, O. (1992). Consumer response to changes in food labeling: discussion. *American Journal of Agricultural Economics*, 74(5), 1215–1216.
- Caswell, J. A., & Mojduszka, E. M. (1996). Using informational labeling to influence the market for quality in food products. *American Journal of Agricultural Economics*, 78, 1248–1253.
- Corcoran, K., Bernués, A., Manrique, E., Pacchioli, M. T., Baines, R., & Boutonnet, J. P. (2001). Current consumer attitudes towards lamb and beef in Europe. *Options Méditerranéennes*, A46, 75–79.
- Cowan, C. (1998). Irish and European consumer views on food safety. *Journal of Food Safety*, 18, 275–295.
- Dalen, G. A. (1996). Assuring eating quality of meat. *Meat Science*, 43(S), 21–33.
- Grunert, K. G. (1997). What’s in a steak? A cross-cultural study on the quality perception of beef. *Food Quality and Preference*, 8(3), 157–174.

- Grunert, K. G. (2001). Current issues in the analysis of consumer food choice. In *71st EAAE Seminar: The food consumer in the early 21st century*, 19–20 April 2001, Zaragoza, Spain.
- Grunert, K. G., & Valli, C. (2001). Designer-made meat and dairy products: consumer-led product development. *Livestock Production Science*, 72, 83–98.
- Goldberg, J. (1992). Nutrition and health communication: the message and the media over half a century. *Nutrition Reviews*, 50(3), 71–77.
- Harrington, G. (1994). Consumer demands: major problems facing industry in a consumer-driven society. *Meat Science*, 36, 5–18.
- Henson, S., & Northen, J. (2000). Consumer assessment of the safety of beef at the point of purchase: a pan-European study. *Journal of Agricultural Economics*, 51(1), 90–105.
- Issanchou, S. (1996). Consumer expectations and perceptions of meat and meat product quality. *Meat Science*, 43(S), 5–19.
- Kotler, P. (1997). *Marketing management: analysis, planning, implementation and control*. Englewood Cliffs, New Jersey: Prentice Hall International.
- Latouche, K., Rainelli, P., & Vermersch, D. (1998). Food safety issues and the BSE scare: some lessons from the French case. *Food Policy*, 23(5), 347–356.
- Latvala, T., & Kola, J. (2001). Measuring consumers benefits of credence characteristics of beef: ex ante valuation. In *71st EAAE Seminar: The food consumer in the early 21st century*, 19–20 April 2001, Zaragoza, Spain.
- Mannion, M. A., Cowan, C., & Gannon, M. (2000). Factors associated with perceived quality influencing beef consumption behaviour in Ireland. *British Food Journal*, 102(3), 195–210.
- Næs, T., Baardseth, P., Helgesen, H., & Isaksson, T. (1996). Multivariate techniques in the analysis of meat quality. *Meat Science*, 43(S), 135–149.
- Nayga, R. M. (1999). On consumers' perception about the reliability of nutrient content claims on food labels. *Journal of International Food and Agribusiness Marketing*, 11(1), 43–55.
- Nijssen, E. J., & Van Trijp, H. C. M. (1998). Branding fresh food products: exploratory empirical evidence from the Netherlands. *European Review of Agricultural Economics*, 25(2), 228–242.
- Olson, J. C., & Jacoby, J. (1972). Cue utilization in the quality perception process. In M. Venkatesan (Eds.), *Proceedings of the Third Annual Conference of the Association for Consumer Research* (pp. 167–179), 24–28 June 2000, Chicago, USA.
- Padberg, D. (1992). Nutritional labeling as a policy instrument. *American Journal of Agricultural Economics*, 74(5), 1208–1212.
- SAS Institute. (1994). *SAS/STAT user's guide*. Cary, North Carolina, USA: SAS.
- Steenkamp, J.-B. E. M. (1990). Conceptual model of the quality perception process. *Journal of Business Research*, 21, 309–333.
- Steenkamp, J.-B. E. M. (1997). Dynamics in consumer behaviour with respect to agricultural and food products. In B. Wierenga, A. Tilburgh, K. Grunert, J.-B. E. M. Steenkamp, & M. Wedel (Eds.), *Agricultural marketing and consumer behaviour in a changing world* (pp. 143–188). Dordrecht: Kluwer Academic Publishers.
- Van der Lans, I. A., Van Ittersum, K., & De Cicco, A. (2001). The role of the region of production and EU certificates of origin in consumer evaluation of food products. *European Review of Agricultural Economics*, 28(4), 451–477.
- Van Trijp, H. C. M., Steenkamp, J.-B. E. M., & Candel, M. J. J. M. (1997). Quality labeling as instrument to create product equity: the case of IKB in The Netherlands. In B. Wierenga, A. Tilburgh, K. Grunert, J.-B. E. M. Steenkamp, & M. Wedel (Eds.), *Agricultural marketing and consumer behaviour in a changing world* (pp. 201–215). Dordrecht: Kluwer Academic Publishers.
- Verbeke, W., & Viaene, J. (1999). Consumer attitude to beef quality labeling and associations with beef quality labels. *Journal of International Food and Agribusiness Marketing*, 10(3), 45–65.
- Wandel, M., & Bugge, A. (1997). Environmental concern in consumer evaluation of food quality. *Food Quality and Preference*, 8(1), 19–26.
- Wandel, M. (1997). Food labelling from a consumer perspective. *British Food Journal*, 99(6), 212–219.
- Wang, G., Fletcher, S. M., & Carley, D. H. (1995). Consumer utilization of food labeling as a source of nutrition information. *The Journal of Consumer Affairs*, 29(2), 368–380.