NSUMER EVALUATION OF MEAT QUALITY CRITERIA

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MARY

A thousand consumers filled in a questionnaire concerning their meat consumption, the way they purchase meat, and ated the importance of various factors on their choice for meat :nutritive value, price, eating qualities... They were asked to the importance of sensory qualities (colour, tenderness ...) and estimate the role of various factors on meat quality (influence mal, butcher, cooking...).

The results showed that sensory properties and security aspects (hormones) of meat are of paramount importance for nsumer. Taste and tenderness are estimated as the most important organoleptic qualities.

Most production factors are thought to be important for meat quality, although feeding of animals and meat treatment slaughter are recognised as the most significant.

Data have been submitted to Multiple Correspondence Analysis in order to show the relations between the consumer's acteristics (age, sex, meat purchase and consumption) and the estimated importance of meat qualities. The age of consumers s to be one of the most discriminating factors for quality perception.

The results show how consumers characteristics are related to there opinion on meat quality.

RODUCTION

Quality is becoming more and more important for consumers. But quality is quite difficult to define, and various nings can be attributed to such a term. In any case quality is the adaptation of a product to a market, therefore it is so portant to know more about how quality is perceived by the consumer.

For meat and meat products, quality, as seen by the consumer, can be classified in five main topics: nutritive value, sic characteristics, sensory properties, ease of handling, and image of the product. It is necessary for the whole food chain to derstand how consumer is aware of quality. Two types of study can be realised, one asking people what they think, the other serving what they do. The evolution of consomption during the past years have been studied COMBRIS 1990, and image of s analysed ORENGA 1990. But few works have been done on the relation of consumers characteristics and ther opinion on the terminants of meat quality.

The purpose of this work is to analyse consumer perception of meat quality. It must be clear that such data can only give rmation on what consumer say, which is not always exactly what he do. Anyhow it is important for researchers involved in oking meat quality to know more about consumers evaluation of various factors on meat quality.

TERIAL AND METHODS

During an exhibition, 'Les leviers du futur' in Clermont-Ferrand, a questionnaire is provided to visitors which are asked to n the form completely, and are rewarded with a pencil.

Four types of questions are asked:

The first questions are: age, sex, and profession of the respondent; how often meat is eaten (every meal, one meal out ten, rarely, never); where the meat is purchased (traditional butcher, supermarket, hyper market, other); how the meat is bought packed, cut by the butcher, frozen); and global satisfaction toward meat (always, most often, rarely satisfied).

Then questions are, for respondents, to evaluate the weight of various factors on a four step scale: - most important - important - important - not important.

The first group of questions is about the importance of : - nutritive qualities (nut) - price (pri) - place of purchase (pur) - e of hormones, antibiotics (hor) - sensory properties (sen).

The second group deal with sensory properties : - Colour (col) - odour (odr) - fat content (fat) - taste (tas) - tenderness) - juiciness (jui).

The last group deal with the factors that could influence meat quality : - age of animal (old) - breed (brd) - feeding (fed) - ther conditions (slt) - the butcher (but) - meat keeping after slaughter (kep) - packaging (pac) - cooking (cok)

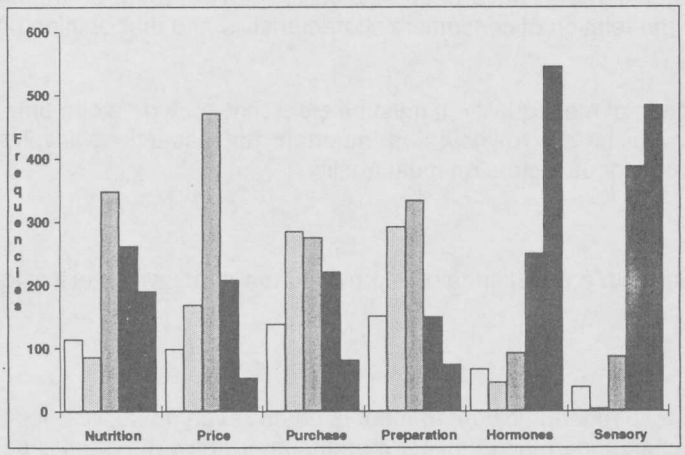
More than one thousand visitors filled in a questionnaire. After eliminating those people who said they never eat and dealing with the incomplete forms, it left just 1000 questionnaires that were to be analysed. The first step is to calc frequencies, then the two classes 'of minor importance ' and 'important' have been gathered due to low frequencies and data been submitted to multiple correspondance analysis using SAS statistical package (SAS 1990).

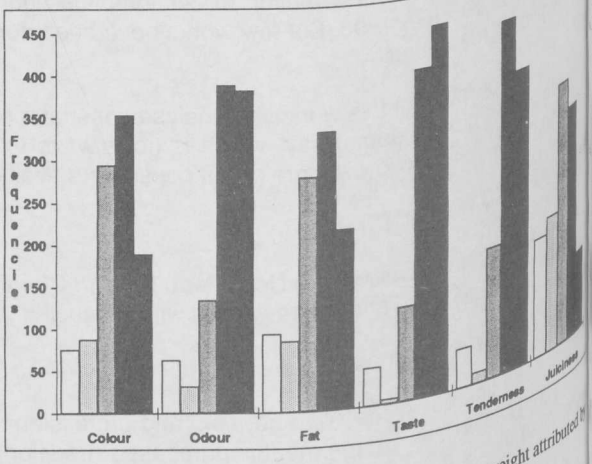
RESULTS

The results are analysed in two ways, firstly simple frequencies are calculated to measure the relative importance of various factors studied for the consumers; then data have been submitted to multiple correspondence analysis to study the rela between the characteristics of the respondent and the importance he/she place on the qualityof the meat, or what he/she bel about the determinants of quality.

Sex	Males		Females	
	432		568	
Age	<25	25 - 40	41 - 60	>60
	250	342	259	95
Frequency of consumption	Every meal	One meal out of two	Rarely	
	389	518	93	
Purchase	Butcher shop	Super-markets	Hyper-markets	Others
	625	169	422	58
Packaging		Often	Sometime	Rarely
	pre-packed	255	371	105
	cut by the butcher	693	224	25
	frozen	43	331	282
Satisfaction	Always	Most often	Rarely	
	154	800	46	

Table 1 - Frequencies - The sum may be different from 1000 due to either no answer or multiple answers.





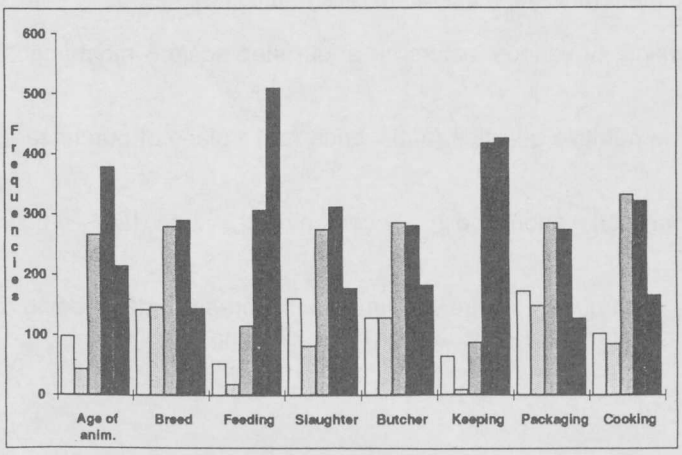


Figure 1 - Upper left - Histograms showing the results of the weight attributed by consumers to various parameters.

Figure 2 - Upper right - relative weight attributed by consumers to the sensory properties of meat.

Figure 3 - Lower right - Importance attributed to various factors on meat quality

- ☐ Do'nt know
- ☐ Of minor importance
- ☐ Important
- ☐ Very important
- ☐ The most important

Table 1 summarises results concerning consumers. The proportion of females is higher than males 57% to 43%., the of age are not exactly representative of the population, young and old people are less represented than they should be. It that two thirds of the meat is sold by super and hyper markets and only one third in traditional butchers. The tendency for ers is to overestimate the frequency of purchase in butcher shops, and underestimate pre-packed meat.

From figure 1 it can be seen that sensory properties are estimated to be most important by consumers (87%) before oduction without 'hormones' or 'antibiotics' (80%). Of less interest are nutritive value (45%), place of purchase (30%), price and ease of preparation (22%). It is obvious that sensory properties are the first quality characteristics for consumers; only mate them as of minor importance.

Figure 2 shows the relative importance respondents grant to sensory properties. Taste, tenderness and odour are very ant for respectively 83%, 78%, and 77% of the consumers. Colour and fat content are estimated less important 54%, and is considered as secondary, only 37% find it very important (and a high proportion, 15%, have no idea on juiciness).

Histograms on figure 3 exhibit the results of the estimated factors on meat quality. Meat conservation after slaughter is portant for 84% of the respondents and feeding of animals for 81%. Then in decreasing order we find : age of slaughter slaughter conditions 49%, the role of the butcher 46%, the way of cooking 48%, the breed 43%, and last, the packaging 40%. e clear that breeding conditions are thought to be important by consumers but the preparation of the meat is considered of nsequence on quality.

Multiple correspondence analysis is realised on the three sets of data, relating consumers characteristics and there on the weight of various factors on meat quality.

Figure 4 exhibits the map representing the first two dimensions. The first axe represent 57% of the total variance and the 12%. One of the most discriminating factors is the age of the respondent, younger people are in the bottom part of the Factors related are: low importance of hormones (hor1) of sensory characteristics (sen1) but price is significant (pri3). consumers buy meat mostly in supermarkets (supY) hyper markets (hypY) but not in butcher shops (shpN), they don't purchase place is important (pur1). With elderly people it is not clear which are the most discriminating factors. There is no for nutrition (nut?) sensory properties (sen?) price (pri) or ease of preparation (prp?). Although they think place of ase is important (pur3) and are generally satisfied with the meat they eat (sat3). The second dimension is more difficult to t on the right side we find people who eat small amounts of meat (frq1), and think preparation is important (prp3); and on side consumers who buy meat in butcher shop (shpY) but not in hyper markets (hypN). Sex of the respondent does not to be a discriminating factor.

ure 4 Results of multiple correspondence analysis

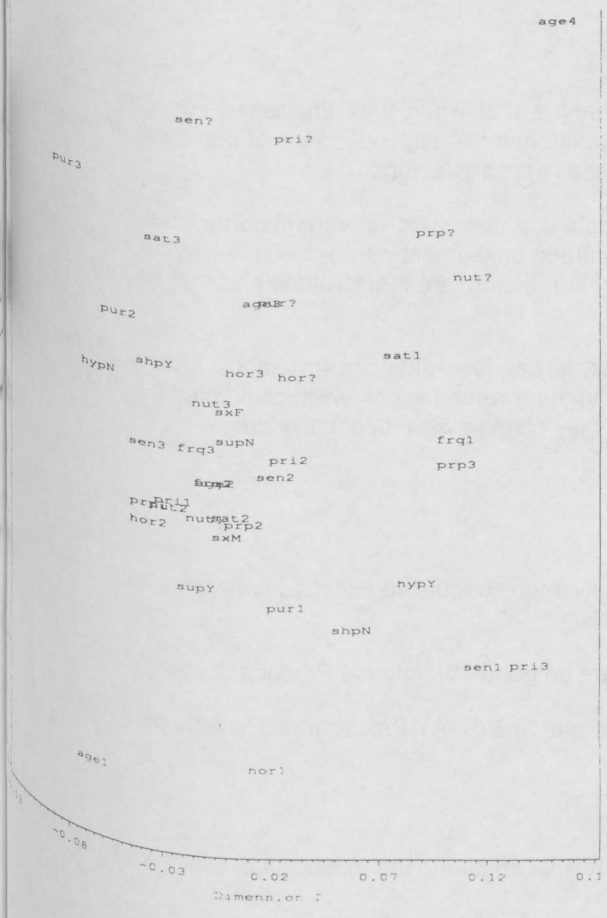


Figure 5 Results for sensory data

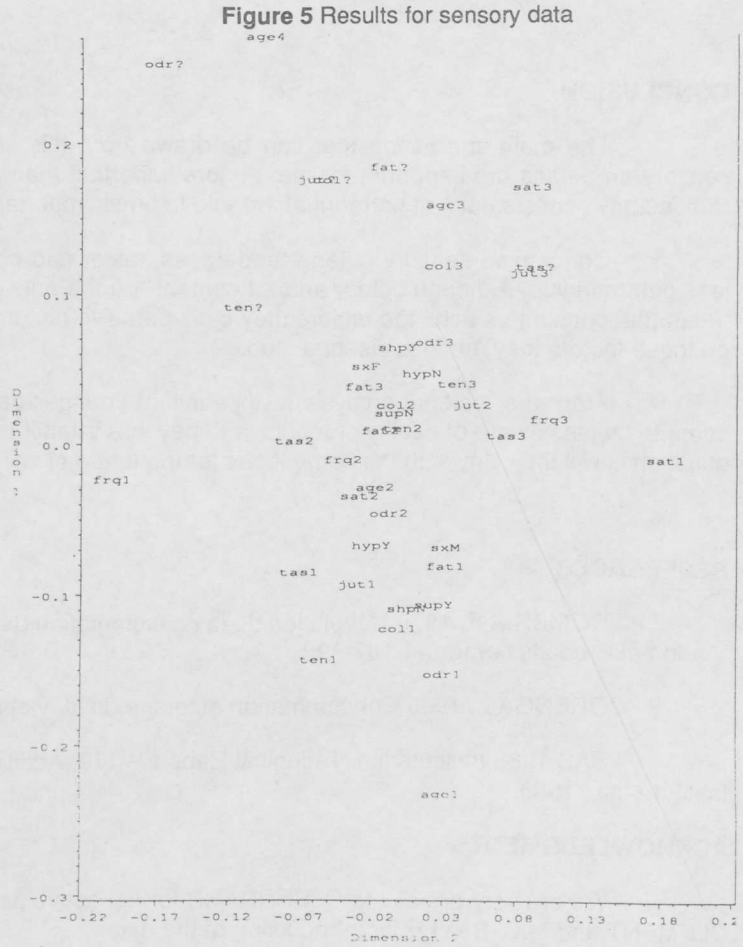
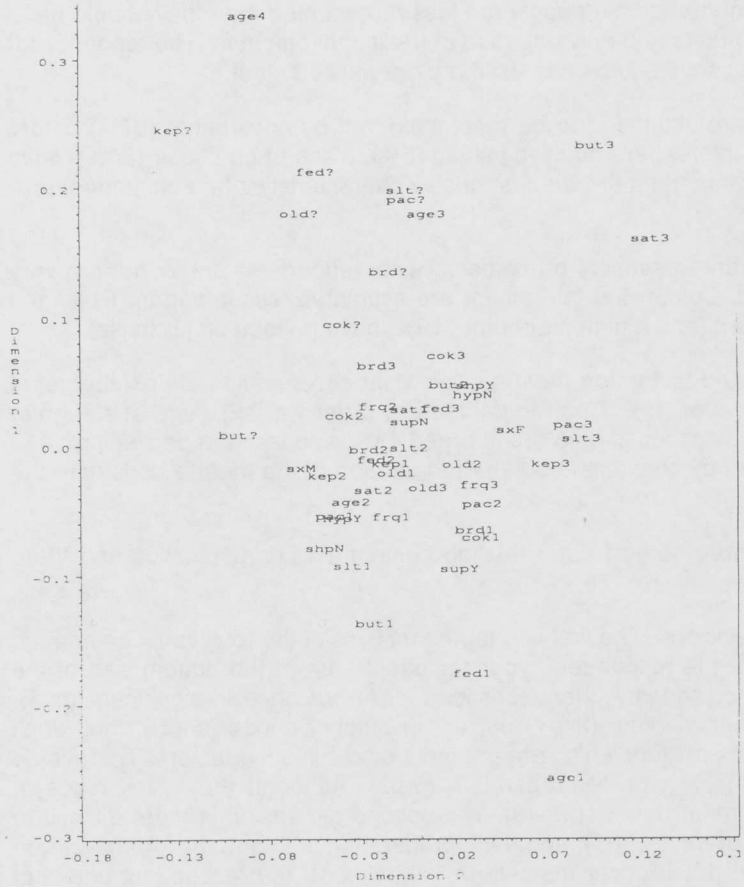


Figure 6 - MCA results for production factors



The relative importance of sensory properties represented in figure 5.(dimension1 : 53% dimension 2 : 1 In this case age is related to the first dimension. With yo people there is relatively small importance of various sens criteria: tenderness (ten1) odour (odr1) colour (col1) juicin (jui1) taste (tas1) and fat quantity (fat1), and they buy meat super markets, hyper markets, but not in butcher's shop (shp On the other side with elder people (age3- age4) either th give no answers (odr?), (fat?), (col?), (tas?) or they beli sensory factors are important, specially colour (col3) juicine (jut2-jut3) , odour (odr3). They buy meat in a butcher's sh (shpN) and are generally satisfied with the meat they eat (sat The second dimension discriminate the frequency consumption on the left side low frequency (frq1) and on right side high frequency (frq3), but low satisfaction (sat1).

The last graph, figure 6 represent the estimated of different factors on meat quality (dimension1 53%, dimens 2 13%). Again, age of respondent remains the discriminant. Younger people do not believe that most fact are important for meat quality, feeding of animals (fed1), role the butcher (but1), conditions of slaughter (slt1),neither breed animal (brd1) or cooking conditions(cok1). People in grou age3 who think butcher is important (but3) are also those w are most satisfied (sat3). Consumers buying meat in a butche shop pay more attention to cooking conditions (cok3), bre and feeding of animal (brd3) (fed3). Females (sxF) pay mo attention to slaughter conditions (slt3), keeping of meat (kep and packaging (pac3). The others factors are more difficult interpret.

CONCLUSION

The main conclusion that can be drawn from this study is that when they are asked consumers say they find sensory properties are important for meat, more important than price, nutritive aspects, place of purchase or ease of prepara But security aspects (lack of hormones) are told to be as important as sensory factors.

Concerning sensory criteria tenderness, taste, and odour are described as very important but colour or fat conte less determinants. Although colour and fat content are the only criteria consumers can perceive while buying the meat. Does mean that consumers think the factors they can't perceive directly in the shop are more valuable or that as they can choose b on those factors they are less disappointed.

From the factorial analysis it appear that younger people pay less attention to various factors on meat quality. seem to be less aware of quality products, and pay less attention to the diverse factors which could play a role on meat quality question is will they stay with the same ideas for the future or will they change while becoming older?

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