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Review

# Consumer perception of meat quality and implications for product development in the meat sector—a review☆

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**Abstract**

In the first part of the paper, the Total Food Quality Model is used as a frame of reference for analysing the way in which consumers perceive meat quality, drawing mainly on European studies involving beef and pork. The way in which consumers form expectations about quality at the point of purchase, based on their own experience and informational cues available in the shopping environment, is described, as well as the way in which quality is experienced in the home during and after meal preparation. The relationship between quality expectations and quality experience and its implications for consumer satisfaction and repeat purchase intent is addressed. In the second part of the paper, and building on the insights obtained on subjective quality perception, possibilities for consumer-oriented product development in the meat sector are addressed. Issues dealt with here are branding, differentiation by taste, healthiness and convenience, and by process characteristics like organic production and animal welfare.


*Keywords:* Consumers; Perceived quality; New product development

**Contents**



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## 1. Introduction

There is widespread agreement among many actors in the food sector that competitiveness on developed food markets is linked to the ability to develop new, differentiated products, which are able to exploit the fact that consumer preferences differ among consumer segments, increase consumer loyalty, and move competition away from the purely cost and price-based competition which characterises commodity-type markets. This is commonly accepted for food products with a higher degree of processing, but seems to an increasing extent also to characterise markets for fresh produce, including fresh vegetables, fresh fish and fresh meat. In the present paper, we adopt a consumer behaviour approach to the analysis of meat quality. In the following section, we present a framework for the analysis of consumer quality perception and decision-making in the food sector, the Total Food Quality Model. After that, we use this framework in addressing questions on what meat quality means for consumers, how they form quality expectations at the point of purchase, and how these relate to the quality experienced during consumption. Based on this we then address questions of product differentiation by branding, sensory characteristics, and process characteristics. We finish with some conclusions on product development in the meat sector.

## 2. Analysing quality perception

### 2.1. The Total Food Quality Model

The Total Food Quality Model (TFQM), originally proposed by Grunert, Larsen, Madsen, and Baadsgaard (1996), is an attempt to integrate a number of approaches to analysing consumer quality perception and decision-making, notably means-end chain theory (Gutman, 1982), multi-attribute attitude theory (Fishbein & Ajzen, 1975), economics of information approaches (Darby & Karni, 1973), the explanation of intention to purchase as a trade-off between give and get components (which appears in the literature in many guises, mainly as extensions of the multi-attribute framework, as in the Theory of Reasoned Action and the Theory of Planned Behaviour), and the explanation of consumer satisfaction as the discrepancy between expected and experienced quality (Oliver, 1980, 1993). The model is shown in Fig. 1. It should be noted that a number of similar models have been proposed in the literature (Andersen, 1994; Poulsen, Juhl, Kristensen, Bech, & Engelund, 1996; Steenkamp & van Trijp, 1996).

First of all, the TFQM distinguishes between 'before' and 'after' purchase evaluations. Dimensions of quality are commonly categorized into search, experience and credence characteristics (Darby & Karni, 1973),

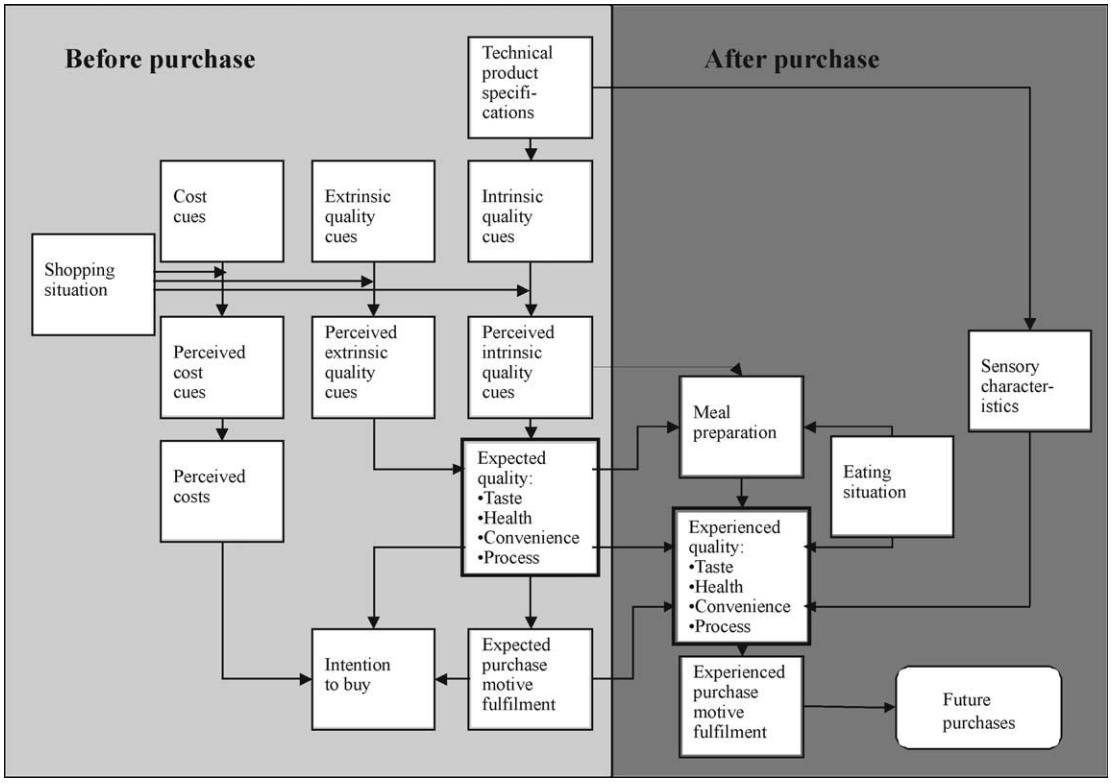


Fig. 1. The Total Food Quality Model.

depending on when the consumer can ascertain a quality: a search quality (like the appearance of a piece of meat) can be evaluated before the purchase, an experience quality (like the taste of the meat) can first be evaluated after the purchase, and a credence quality (like the healthiness of the meat) can, under normal circumstances, not be evaluated by the average consumer at all, but is a question of faith and trust in the information provided. Many characteristics of a food product, like taste, cannot be ascertained before purchase, i.e. most food products have only search characteristics to a limited degree. In order to make a choice, the consumer will develop expectations about quality—but it is only after consumption that experienced quality can be determined, and even this is limited in the case of credence characteristics like the healthiness of a product. The distinction between before and after purchase thus forms the basis of the TFQM.

In the before purchase part, the model shows how quality expectations are formed based on the quality cues available. Cues are pieces of information used to form quality expectations (Steenkamp, 1990). The intrinsic quality cues cover the physical characteristics of the product, and are related to the product's technical specifications, which also include its physiological characteristics, i.e. characteristics that can be measured objectively. The extrinsic quality cues represent all other characteristics of the product, such as brand name, price, distribution, outlet, packaging, etc. Of all the cues consumers are exposed to, only those, which are perceived, will have an influence on expected quality. The cues consumers are exposed to and those they perceive are affected by the shopping situation: the amount of information in the shop, whether purchases are planned or spontaneous, the pressure of time while shopping, etc.

According to the TFQM, quality is not an aim in itself, but is desired because it helps to satisfy purchase motives or values. The model therefore includes motive or value fulfilment, i.e. how food products contribute to the achievement of desired consequences and values. Extrinsic cues such as a label and its content may, for example, generate expectations about exceptionally high eating quality—giving the consumer a feeling of luxury and of pleasure in life. The values sought by consumers will, in turn, have an impact on which quality dimensions are sought and how different cues are perceived and evaluated. The sequence from cues, through quality, to purchase motives forms a hierarchy of increasingly abstract cognitive categories.

Expected quality and expected fulfilment of purchase motives constitute the positive consequences consumers expect from buying a food product, and are offset against the negative consequences in the form of various (mostly monetary) costs. The trade-off determines the intention to buy.

After the purchase, the consumer will have a quality experience, which often deviates from expected quality, especially when it is based on quality cues with a low degree of predictive power. The experienced quality is influenced by many factors. The product itself, especially its sensory characteristics (in an objective sense, as measured by a sensory panel), is obviously one determinant, but there are many others: the way the product has been prepared, situational factors such as time of day and type of meal, the consumer's mood, previous experience, etc. And the expectation itself may also be an important variable in determining the experienced quality of the product (Deliza & MacFie, 1996; Oliver, 1993; Schifferstein, 2001). The relationship between quality expectation and quality experience (e.g. before and after purchase) is commonly believed to determine product satisfaction, and consequently the probability of purchasing the product again.

In the following, we will first describe the formation of quality expectations for meat, drawing on a study about beef, showing that the formation of quality expectations is based on a few key cues. We also address the question whether the formation of quality expectations can be made easier by providing more product information to consumers. We then look at how quality is experienced after the purchase, drawing on studies on beef and pork, and at the extent to which consumers seem to be able to predict their quality experiences by their quality expectations.

### 2.2. Formation of quality expectations

We start by describing a study on the formation of quality expectations for beef which we did in four European countries (details are in Grunert, 1997). The major cues identified there on which consumers base their formation of quality expectations and the major dimensions of meat quality found here have since been used in several other studies, as will be shown later.

In order to determine how consumers use intrinsic and extrinsic cues to form expectations about beef quality, data were collected in four countries: France, Germany, Spain, and the United Kingdom. The study was based on an extended conjoint analysis design, where consumers evaluated product descriptions constructed from a factorial design of intrinsic and extrinsic quality cues. Based on focus group interviews, the following quality cues were selected for the study:

*Intrinsic quality cues:*

- cut: steak, roast, cubed, minced
- colour: light red, medium red, dark red for roast and steak; lighter red and darker red for cubed and minced
- fat lumps: major, minor (for steak, roast, and cubed only)

- fat rim: yes, no (for steak and roast only)
- marbling: high, low (for steak and roast only)
- fat content: high, low (for minced only)

*Extrinsic quality cues:*

- price: low, medium, high
- origin: no information, Denmark, Ireland (in the UK: Scotland)
- information on animal production: no information, information 'this meat is from animals bred and fed with due consideration to animal welfare and without artificial hormones and additives'

In order to operationalise the various combinations of intrinsic quality cues, 56 colour photographs of pieces of meat, representing combinations of intrinsic quality cues, were taken in co-operation with the Danish Meat Research Institute. All extrinsic information was printed on cards, presented to the respondent along with the photograph of the piece of meat. One extrinsic cue of some importance, which was not used as part of the profiles, refers to place of purchase. Consumers in all four countries have a choice of places of purchase, with supermarkets and butcher shops being the main alternatives. Since meat presentation differs considerably between supermarkets and butchers, it was believed that this variable could not realistically be incorporated into the profiles. Instead, respondents were asked to rate each profile with regard to whether they thought this piece of meat would be on sale at a butchers.

The focus groups indicated that the most important quality dimensions when evaluating beef were taste, tenderness, juiciness, freshness, leanness, healthiness and nutrition. For each product description (combination of photograph and extrinsic product information), the respondent rated perceived colour of the meat, perceived fat content, and perceived value for money, giving a measure of perceived quality cues. They then rated the seven quality aspects, the perceived purchase outlet and intention to purchase. 200 consumers were interviewed in each country.

Table 1 shows some of the results from this study. Two factors appear to dominate the formation of quality expectations: perceived fat and the place of purchase. This indicates considerable uncertainty on the part of consumers with regard to the formation of quality expectations. Fat content is actually not a good predictor of the quality aspects consumers are interested in, and to the extent it is, it is the opposite of what consumers suppose. A certain degree of marbling actually contributes to tenderness, taste and juiciness, whereas consumers seem to think it detracts from it. Thus, the formation of expectations about taste, tenderness and juiciness mainly based on fat attributes is actually dysfunctional. The high degree of importance attached to buying from a butcher shows that consumers prefer to entrust the purchase decision to an expert, who would be more capable of predicting the outcome of the meal than themselves. The use of colour as a cue in the quality perception process does not add to the accuracy of the prediction of quality aspects either.

The results from this study are not a singular case—similar results have been found regarding the formation of quality expectations both in other studies dealing with beef (Grunert, 2001) and in similar studies dealing with pork (Bredahl, Grunert, & Fertin, 1998).

Given the uncertainty consumers seem to exhibit in the formation of quality expectations about fresh meat, one may expect that consumers would welcome additional information at the point of purchase which could help them in making choices. In order to investigate possibilities for better consumer information on fresh meat, a list of objective characteristics of the product and/or the production process for pig meat was derived in collaboration with the Danish Meat Science Institute and screened for reliable predictiveness with regard to quality dimensions of relevance to consumers (Grunert,

Table 1
Determinants of perceived quality of beef

| Expected quality as determined by | Germany | | Spain | | United Kingdom | |
|---|---|---|---|---|---|---|
| | Coefficient | *t*-Value | Coefficient | *t*-Value | Coefficient | *t*-Value |
| perceived costs | −0.097 | −3.50 | −0.151 | −4.55 | −0.059 | −2.15 |
| perceived colour | 0.044 | 1.67 | −0.014 | −0.44 | 0.037 | 1.27 |
| perceived fat | −0.452 | −16.76 | −0.243 | −7.69 | −0.551 | −19.03 |
| cut, roast | −0.124 | −3.92 | −0.015 | −0.44 | 0.002 | −0.06 |
| cut, cubed | 0.026 | 0.91 | −0.128 | −3.53 | 0.009 | 0.27 |
| cut, minced | −0.020 | −0.67 | −0.120 | −3.45 | 0.020 | 0.63 |
| origin, Ireland | −0.002 | −0.09 | 0.022 | 0.61 | 0.050 | 1.51 |
| origin, Denmark | 0.033 | 1.14 | −0.018 | −0.50 | 0.012 | 0.36 |
| info on breed/feed | −0.019 | −0.74 | −0.014 | −0.47 | 0.025 | 0.90 |
| bought at butcher | 0.335 | 12.82 | 0.337 | 10.77 | 0.152 | 5.28 |
| $r^2$ | 0.45 | | 0.24 | | 0.35 | |

Coefficients are from a more comprehensive structural equation model. The complete set of results can be found in Grunert (1997).

Skytte, Esbjerg, & Hviid, 2002). This resulted in a list of 20 characteristics, which were then tested with a group of German consumers in order to investigate whether consumers believed they understood what the characteristic is about, and to which extent they thought the characteristic had importance for the buying decisions. Results from this study are shown in Fig. 2. Those characteristics which consumers both believe they understand and which they regard as important are in the upper right corner of the diagram. The most interesting result is the absence of characteristics with predictive value for eating quality, i.e., taste and tenderness: all characteristics in the upper right corner are health-related (like fat content and absence of pesticide residues) or process-related (animal welfare). This does not indicate that consumers are not interested in eating quality; rather, it indicates that consumers do not believe that judgements about eating quality can be improved by more information. Qualitative research has confirmed this: when asked how to make judgements which ensure that the meat bought actually will be tasty and tender when prepared, consumers indicated that this is to a large extent a question of intuition and gut-feeling.

Summing up the major results on the formation of quality expectations, we can conclude that these are based on a small number of key cues, which are probably not very predictive with regard to the quality actually experienced later during consumption. This uncertainty on the part of consumers results in a tendency to rather entrust the quality evaluation to an expert, like a butcher, than to try to arrive at better quality evaluations on the basis of better information.

### 2.3. Quality expectations and quality experience

Given the uncertainty which consumers seem to have while evaluating fresh meat, and especially the sensory dimensions of quality, we expect that the correspondence between quality expectations and quality experience during consumption may be less than perfect. Several studies confirm this expectation, of which we will discuss two in more detail (for similar results, see also Bredahl, in press; Grunert & Andersen, 2000).

A study on quality perceptions of pork investigated the relationships between intrinsic quality cues, expected quality, experienced quality and physiological product characteristics (Bredahl et al., 1998). Two hundred German consumers who prepared and consumed pork at least twice a month, and who had the main responsibility for shopping for food and cooking in their own household, participated in the study. Samples of pork chops were used in the study, and six physiological product characteristics were measured, all of which are commonly used in objective measurements of pork

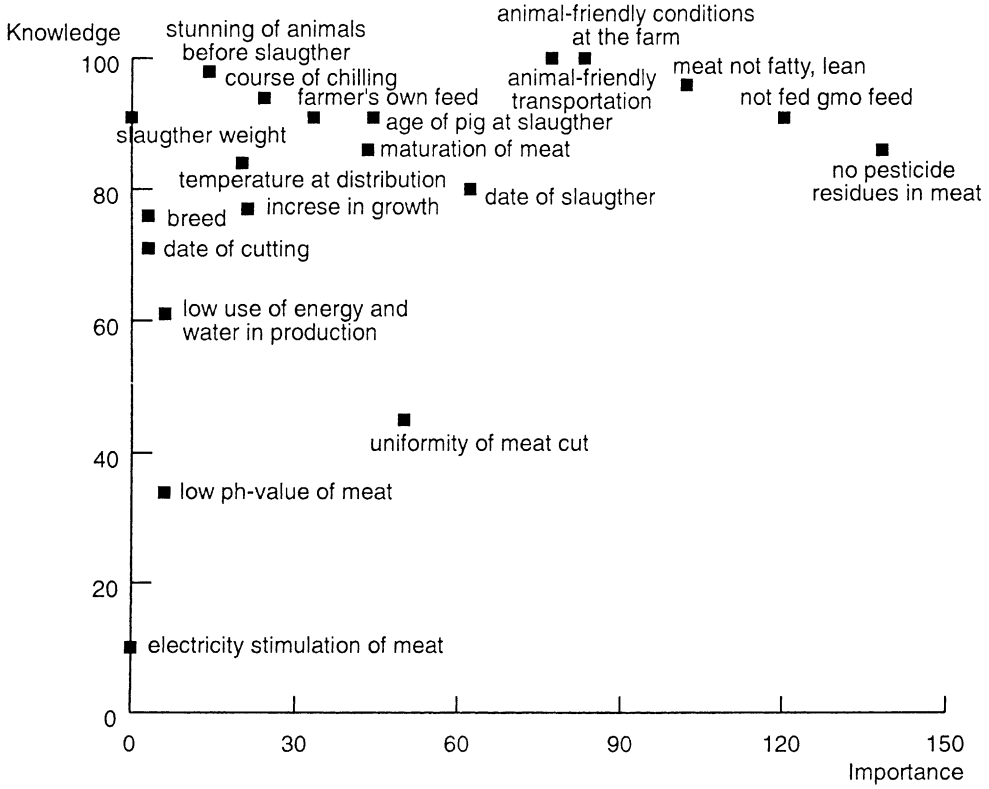


Fig. 2. Perceived own knowledge and perceived importance in making purchase decisions for 20 attributes of pork, based on investigation with German consumers. Details can be found in Grunert, Skytte, Esbjerg, and Hviid (2002).

quality: presence of the halothane gene (a stress gene commonly related to meat quality), PSE, pH, colour, blood splashes and intramuscular fat. Each consumer evaluated three pork samples. First, consumers were invited to a test studio where they were shown real, fresh samples of three kinds of pork and asked to evaluate the samples by filling in a questionnaire. They were then given colour-labelled samples of each of the three kinds of pork to take home, and asked to prepare and consume the meat for dinner the next three days, in a predetermined order. They were requested to use a preparation method that was familiar to them, and to use basically the same method on all 3 days. After the 3 days, an interviewer phoned the respondents to collect the data recorded in a new questionnaire.

The quality dimensions assessed were nutritional value, wholesomeness, freshness, leanness, juiciness, taste, and tenderness, and thus followed from the results in Grunert (1997), discussed above. These quality criteria appeared to be used by consumers both to form expectations about the quality of pork in a purchase situation and to evaluate the meat quality after preparation and consumption, and were subsequently used both to measure consumers' quality expectations of the raw meat samples and quality experiences after having consumed the meat at home. When viewing the raw meat, consumer perceptions of the following four intrinsic cues were measured: colour, share of fat, fat marbling and meat juice.

The data were subjected to structural equation modelling using LISREL (see, for example, Poulsen et al., 1996). The result of this is shown in Fig. 3. Only significant relationships are shown in the model. From the physiological product characteristics, pH value had no significant relationship to either visual appearance or experienced quality, and is therefore not shown in Fig. 3.

The coefficients show a very strong relationship between visual appearance and expected quality. This means that the product quality expected by consumers was largely inferred from the following intrinsic quality cues: colour, share of fat, fat marbling and meat juice. As for experienced quality, principal components analysis showed that eating quality (covering taste, tenderness and juiciness) has to be distinguished from health quality (covering nutritional value, wholesomeness and leanness), thus mirroring the distinction between those quality dimensions which can be experienced during consumption (experience qualities) and those, which cannot (credence qualities). The experienced eating quality is related to expected quality, but only moderately: only 24% of the variance in experienced eating quality is explained in the model, showing that respondents' ability to predict their sensory experience when eating the meat is quite limited. It should also be noted that the health-related quality that consumers actually "experience" when preparing and consuming the meat is reasonably well explained by their expectations. This is related to the fact that health-related quality aspects are credence characteristics, which cannot be directly experienced during consumption and are therefore inferred from expectations and from quality aspects that can be readily ascertained, i.e. eating quality.

It can also be seen that there is quite a weak relationship between the physiological characteristics and both expected and experienced quality. In two cases, the relationships between a physiological characteristic and quality expectation and experience have opposite signs,

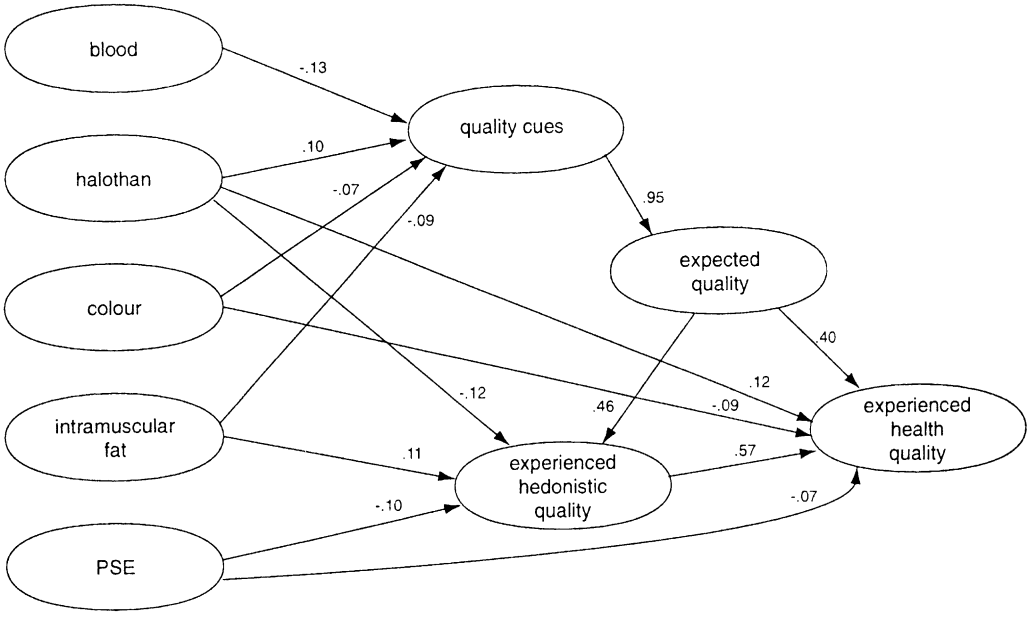


Fig. 3. Physiological product characteristics, intrinsic cues, quality expectations and quality experience for pork. Results based on structural equation model in LISREL. For details including measures of fit, see Bredahl, Grunert, and Fertin (1998).

meaning that a certain objective product characteristic increases quality expectations but decreases quality experience, or vice versa.

Generally, this study confirms that consumers have considerable difficulty in forming quality expectations in a way that is predictive of later quality experience. The one major cue used, fat, is dysfunctional, since its objective relationship to relevant quality dimensions like tenderness and taste is the opposite of what consumers assume—when they expect good quality, bad quality will result, and vice versa. The study also shows that objective measures of product quality may have quite weak relations to quality as experienced by consumers.

Another study on beef (Grunert, 2001) followed a very similar design. One hundred and sixty Danish consumers who were regular eaters of beef and had main responsibility for shopping and preparing food in their households evaluated three types of beef, which originated from dairy cows with 0, 2 or 4 months of fattening up before slaughtering. Respondents first evaluated the raw beef visually, presented to them as photographs. The scales used for ascertaining the perception of the beef's visual appearance and for measuring expected quality were the same as in the pork study mentioned above. Each respondent then received three packages with the three types of meat (frozen) to take home, with the number of pieces of meat corresponding to the size of the household. The respondents also received instructions for thawing and preparation and were asked to serve this meat as a family dinner, with at least 2 day's spacing between the meals. For each meat type (i.e., for each meal), the respondent had to evaluate the experienced quality using the same dimensions as used for measuring quality expectations.

Fig. 4 shows the structural equation model relating the visual appearance, quality expectations and quality experience. The main results are very similar to the study on pork reported in this section, even though we deal with a different type of meat (beef instead of pork) and a different cultural context (Denmark instead of Germany). There is a very low correspondence between quality expectations and quality experience, especially for the eating quality. Fig. 5 shows why: here, we see the mean overall expected and experienced quality for the three types of beef. As we go from 0 to 2 and 4 months of fattening, expected quality falls, mainly due to the stronger visual appearance of fat in the meat. Experienced quality, though, shows the inverse pattern: it increases (although not dramatically) from 0 to 2 and 4 months of fattening. Consumers misinterpret, also in this study, the increase in (intramuscular) fat as a deterioration of quality.

In these studies, we assume that the dimensions on which quality is evaluated are the same for the formation of expectations and the formation of experiences. We regard this as a reasonable assumption for meat, although in more general terms it has been argued that these dimensions may change during the period from purchase to consumption (Gardial, Clemons, Woodruff, Schumann, & Burns, 1994). However, the weights of the dimensions in determining overall quality perception may change. More specifically, we may expect that those quality dimensions which are accessible to the senses—taste, tenderness, juiciness—carry more weight

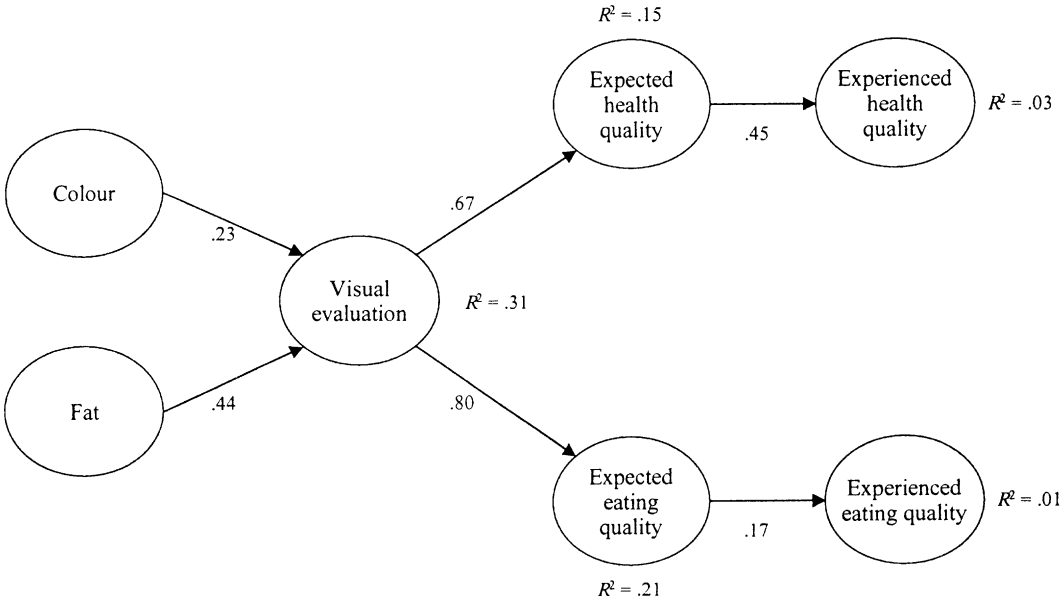


Fig. 4. Intrinsic cues, quality expectations and quality experience for beef. Structural equation model. For details, including measures of fit, see Grunert (2001).

in the quality experience phase than those which are not, like healthiness and nutrition. In the purchase phase, where the formation of expectations on both groups of quality dimensions is based on information, this distinction will play a lesser role. Table 2, drawing on results from the beef study, bears this out: before purchase, eating quality and health quality have almost the same weight, whereas during consumption eating quality clearly has a stronger weight.

As indicated in the Total Food Quality Model, we should also remember that the quality experienced is not only due to the product itself, but also due to the way it has been prepared. Especially for meat, where a good piece of meat can easily be ruined by faulty preparation, this is an important consideration. The impact of ways of preparation and of cooking skills on quality experience is not easy to measure, though, and various attempts at operationalisation have not led to clear-cut results thus far.

Our main conclusion from this section is that the correspondence between expected and experienced meat quality is limited. This goes especially for the eating quality, i.e., the part of quality, which is actually amenable to sensory experience during consumption. At the same time, the weight of eating quality, as compared to health quality, is higher during consumption than in the prepurchase phase. The lacking ability of consumers to predict their own quality experience after purchase is partly due to the misinterpretation of certain intrinsic quality cues, especially intramuscular fat, and due to the paucity of extrinsic quality cues.

## 3. Development of differentiated products in the meat sector

The results presented above on consumer meat quality perception indicate that fresh meat to a large extent is a commodity. Since the product is mostly unbranded and unlabelled, consumers have to base their quality evaluation at the time of purchase mostly on the appearance of the product. Consumers, at least in the

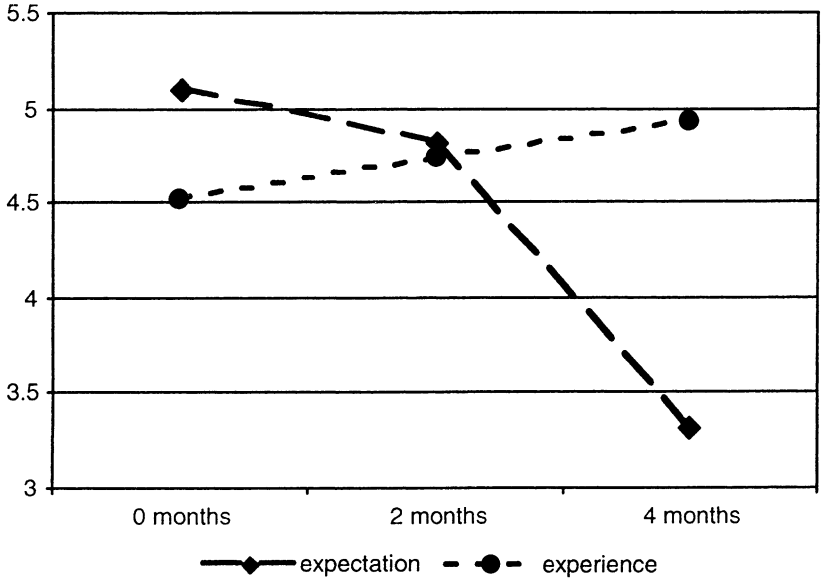


Fig. 5. Expected and experienced quality of beef depending on degree of fattening. From Grunert (2001).

Table 2
Weight of eating quality and of health quality in determining overall expected and perceived quality

| | Quality expectation | | Quality experience | |
|---|---|---|---|---|
| | $\beta$ | $P$ | $\beta$ | $P$ |
| *Eating quality* Taste Tenderness Juiciness | 0.56 | 0.00 | 0.70 | 0.00 |
| *Health quality* Wholesomeness Nutrition Leanness | 0.44 | 0.00 | 0.20 | 0.00 |
| | $R^2 = 0.68$, $F = 429.26$ (2, 406), $P = 0.00$ | | $R^2 = 0.66$, $F = 383.16$ (2, 389), $P = 0.00$ | |

Regression coefficients. Dependent variable is overall quality evaluation, independent variables are principal component scores from the set of quality dimensions. From Grunert (2001).

studies discussed above, are obviously no meat experts, so their judgement based on the appearance of the meat is not very good.

Fresh meat has a considerably lower degree of differentiation than many other food products. As long as fresh meat is mainly sold as a commodity, as noted above, there is also only a limited incentive for meat producers to differentiate their product. Imagine a producer trying to improve the eating quality of beef. The only way consumers could identify this improved product, at the moment, is by its visual appearance. As we have seen, consumers misjudge the eating quality when looking at the meat, and the improved quality will thus not be recognised by consumers in the shop.

Any form for improved or otherwise differentiated meat quality therefore requires new ways to signal the quality to the consumer. The most obvious form to do this is by branding. We therefore start this section by looking at the possible role of branding in fresh meat, before we move on to discuss possible ways to differentiate meat quality.

### 3.1. Branding

Given the considerable uncertainty consumers exhibit in forming quality expectations for meat, branding may appear as an obvious way in which a seller can signal a superior quality and thus reduce consumer uncertainty and encourage consumers to pay a premium for better quality. Brands are the major quality signal that allows consumers to learn from their experience: if consumers like the quality they experienced, they can repurchase the brand and thus reward the producer of the better quality (and if they don't like it, they can punish the producer by avoiding the brand). If a branded product develops a history of constant and reliable quality, the brand will become a symbol for a certain quality positioning in the mind of the consumer, consumers may develop preference for the brand, and brand equity can develop (Erdem & Swait, 1998).

Depending on the current organisation of production, branding may require considerable changes in the organisation of the value chain, though. If the branded product is based on quality improvements based already in primary production, the branded product has to be kept segregated throughout the value chain, and branding will therefore usually imply closer forms of cooperation in the value chain.

But how will consumers react to a branded fresh meat product? Will the brand be used as an extrinsic cue in the formation of quality expectations? This question was investigated in a study accompanying the test marketing of a superior quality beef product on the Danish market (details are in Bredahl, in press). The product was physically different from standard beef on sale in Denmark, but it was also differentiated in several communication and distribution parameters: it was branded (the brand name can be loosely translated to 'Country Beef'), it was placed in a separate cooling counter, it was packaged differently, there were product labels with extended product information on each package, there were information leaflets available at the cooling counter and there was an electronic information scanner at the cooling counter (the scanner could be used to obtain additional information by scanning a barcode that was on the back of the package, for example information on how the cow had been fed). Three hundred and ten consumers who bought this product were interviewed in the store and then again in their home after preparation of the meat. Only consumers who were going to participate in the meals where the meat was served and who were not going to freeze the meat before preparation and consumption were allowed to participate. All respondents paid for the meat themselves. Quality expectations and experience and perceived intrinsic cues were measured using the same scales as in the other studies discussed previously. In addition, consumer perception of the additional extrinsic cues available here—brand name, cardboard tray, product label, package sleeve, information leaflet, recipes, promotion boards and the information scanner—was ascertained.

Since we can assume that the use of extrinsic cues like brand may differ between consumers depending on their level of expertise with the product, the data set was split in two halves based on responses to the question about frequency of use of beefsteaks. Subsequently, structural equation models relating perceived quality cues, quality expectations and quality experience were estimated separately for the two groups (Fig. 6). Results show marked differences between high and low familiarity consumers in the formation of eating quality expectations. Brand is the very predominant quality cue among low familiarity consumers. Among high familiarity consumers, the brand is also important, but has much the same level of importance as perceived fat and meat colour. Experienced eating quality is generally poorer explained among low familiarity consumers. According to the results, this is primarily because the low familiarity consumers fail more in their quality predictions at the moment of purchase. Both high and low familiarity consumers use the brand as the major cue for forming expectations about the health quality. As for the relation among expected and experienced health quality, there is no difference between the two groups. This is not surprising since health is a traditional credence characteristic, which means that ordinary consumers can neither evaluate it before nor after purchase and consumption.

The results clearly show that branding could play a major role in the marketing of differentiated meat products. Consumers are receptive to the brand signal and

use it in the formation of quality expectations. This goes for all consumers, but the use of the brand signal is, not surprisingly, especially strong for consumers with less expertise in the product category.

### 3.2. Differentiation by eating quality, health and convenience

In the discussion on quality perception above, two main dimensions of quality have emerged: eating quality, covering the sensory aspects like taste and tenderness, and health, covering wholesomeness and nutritional value. Both dimensions can be point of departure for product differentiation.

As for eating quality, the results in the section on quality perception indicate that a constant reliable quality, signalled by a branded product, is a market opportunity. It would require a reduction in the variability of eating quality of the meat currently available on the European market, especially with regard to beef, and points at a vertical differentiation, where different levels of eating quality can be distinguished (like a premium quality as compared to a standard quality).

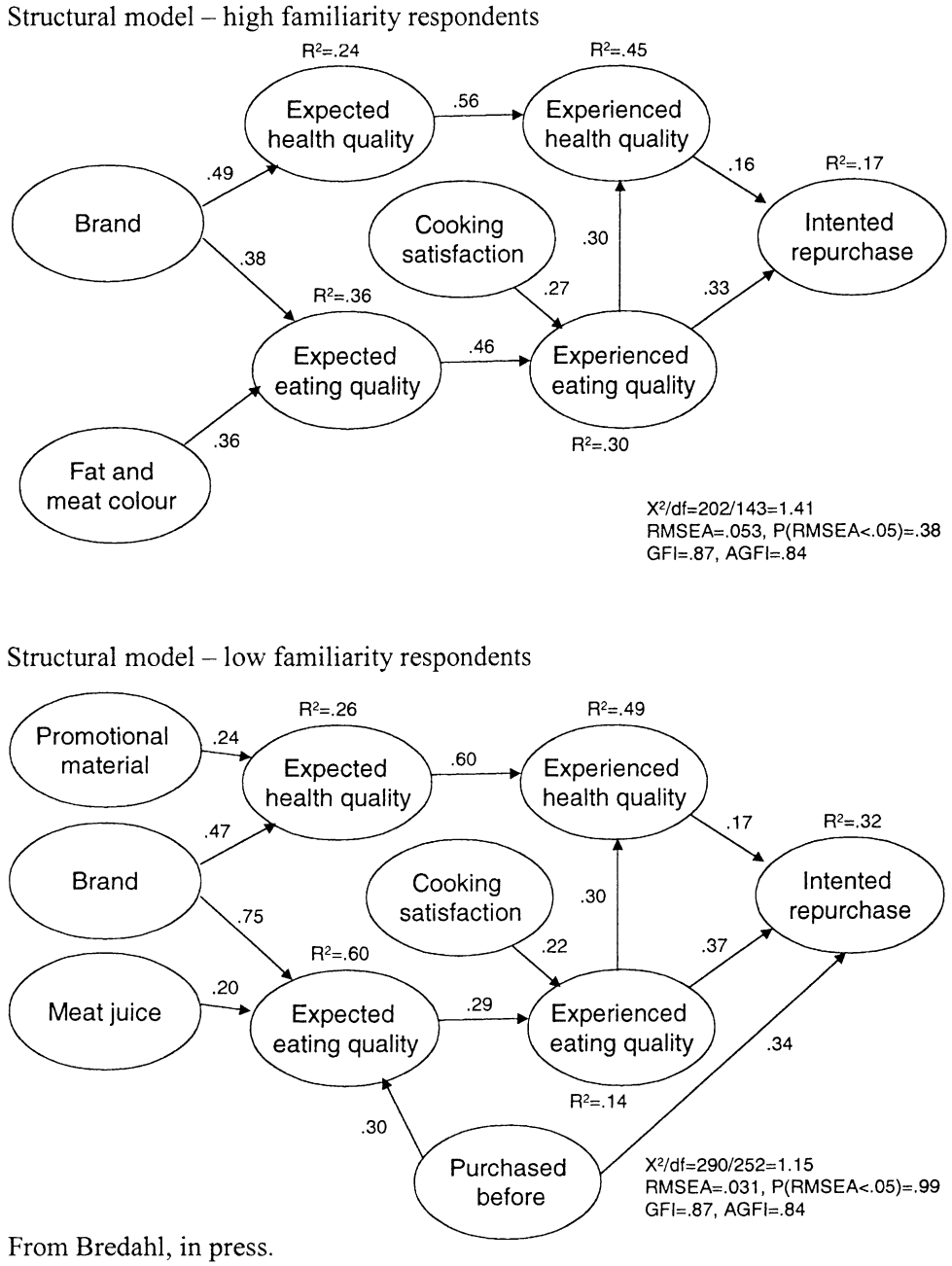


Fig. 6. Effect of brand and other cues on quality expectations and experience for high quality beef. From Bredahl (in press).

The health dimension is a bit more intricate. Various food scares in Europe, and especially the BSE crisis with regard to meat, have increased consumer awareness of food safety issues, and it may be tempting to position meat products based on safety issues. Safety issues are and will in the future be a major parameter in supplier choice by retailers, but using them for positioning vis à vis the consumer is more problematic. Even though the mechanisms by which food safety considerations enter consumer choice are not fully understood, it seems to a large extent to be a 'sleeping criterion,' which can come to dominate food choice in situations of crisis, but with limited effect under normal conditions. Normally, consumers like to assume that all food on sale in supermarkets is safe, and trying to position a differentiated product on the safety issue may hurt the category as a whole.

Health-based differentiation should thus rather aim at positive health effects, i.e., develop meat-based functional food products. Existing experiences with functional food products in Europe have indicated some of the pitfalls in this market, though (Bech-Larsen & Grunert, 2003). Legal restrictions hampering the communication of health benefits are one major problem; European consumers' scepticism with regard to any product modifications that are regarded as 'unnatural' is another. In the meat area, one interesting direction for development could be based on the perceived unhealthiness of animal fat. As the results presented above indicate, consumers have a clear negative perception of fat in meat, which they regard as a sign of bad quality. If good eating quality could be combined with low fat, or if the fat could be modified with regard to better health properties, this would be a type of product development firmly rooted in our knowledge of consumer meat quality perception.

A third dimensions for product differentiation, not discussed in the previous sections of the paper, refers to convenience. Convenience in shopping, meal preparation, eating and disposal of the remains has been of rising importance for the past decades on many markets. Part of this is due to objective changes in factors like women's participation in the labour force, but to a large extent convenience seems to be driven by subjective (rather than objective) time pressure together with attitudinal factors (Scholderer & Grunert, in press). In the fresh meat area, poultry is the section that has adapted most to the convenience trend, by developing new cuts and various forms of pre-prepared products.

The more a product is differentiated, the less it is likely to appeal to consumers at large, because consumers differ in their preferences, their ways of shopping, preparing meals, eating (Grunert, Brunsø, Bredahl, & Bech, 2001). Consumer-oriented product development, also in the meat-sector, will therefore typically require a segment-specific approach (Grunert & Valli, 2001).

### *3.3. Differentiation by process characteristics: organic production and other aspects of production*

A fourth way of differentiating meat products is by process characteristics that do not necessarily have an impact on the properties of the final product. Consumer concern regarding the way food products are produced has increased during the last 10–15 years in most European countries. There have been three broad areas of interest:

- Interest in organic production
- Interest in animal welfare
- Interest in products manufactured in a 'natural' way, i.e. without the use of advanced technology

The latter includes, among many other aspects, the use of genetically modified organisms (GMOs) in food production, a question that is also relevant in the context of animal production.

Process-related qualities of a food product are almost exclusively credence characteristics, since the consumer is seldom able to evaluate whether a food product has actually been produced under the promised conditions. Even during cooking and consumption, the consumer has no possibility of determining whether the food product has the promised process qualities.

As with other credence quality dimensions (e.g. health), consumers' perception of quality is a question of the number of and trust in cues signalling these qualities. Organic farming, for example, is mainly characterised by a ban against the use of fertilisers, chemical crop sprays, prophylactics and industrial feed additives (Hansen & Sørensen, 1993). In addition, rules for animal husbandry are stricter than for conventional farming. These qualities are, however, not easy to evaluate or experience for the consumer, which indicates a need for special quality signalling systems.

There has been a huge increase in demand for organic food products during the last decade in many European countries (Beckmann, Brokmose, & Lind, 2001; Squires, Juric, & Cornwell, 2001). For example, around 15% of Danish households regularly buy organic food, and around 47% frequently or occasionally (Squires et al., 2001). It has been suggested that there are two major motives for choosing organic products, namely health and environmental concerns (Bjerke, 1992). A means-end study with a starting point in consumers' perception of organic pork, carried out in Denmark and Great Britain, gives a more detailed insight into the attributes, desired consequences and life values associated with the 'organic' concept (Bech-Larsen & Grunert, 1998). In this study from 1996, consumers in Great Britain and Denmark were asked to imagine that they had to choose between ordinary and organic pork, and then asked to explain both the difference between the two types of

meat and why the product attributes mentioned were important to them.

The resulting hierarchical value maps are shown in Fig. 7. For both the British and Danish respondents, there seem to be at least four different reasons for choosing or not choosing organic pork: Animal welfare, budgetary restraints, health, and enjoyment. Concerns for animal welfare seem to be more important to British consumers than to the Danish. Budgetary restraints seem to be important both in Great Britain and in Denmark. This is by far the most important motive for not eating organic pork.

The means-end study shows two important things. Firstly, consumers make a whole range of positive

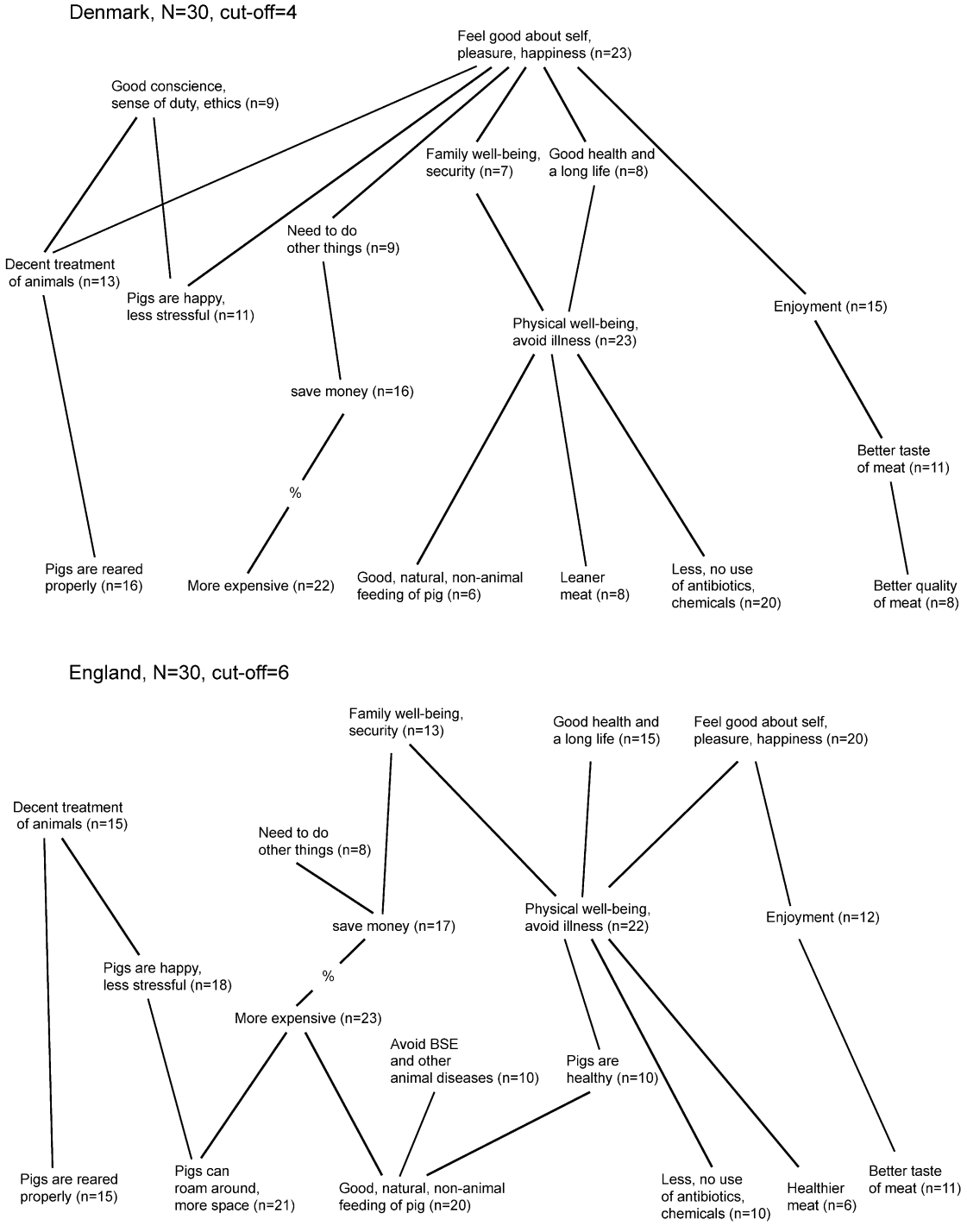


Fig. 7. Hierarchical value maps for consumers' perception of organic/conventional pork. From Bech-Larsen and Grunert (1998).

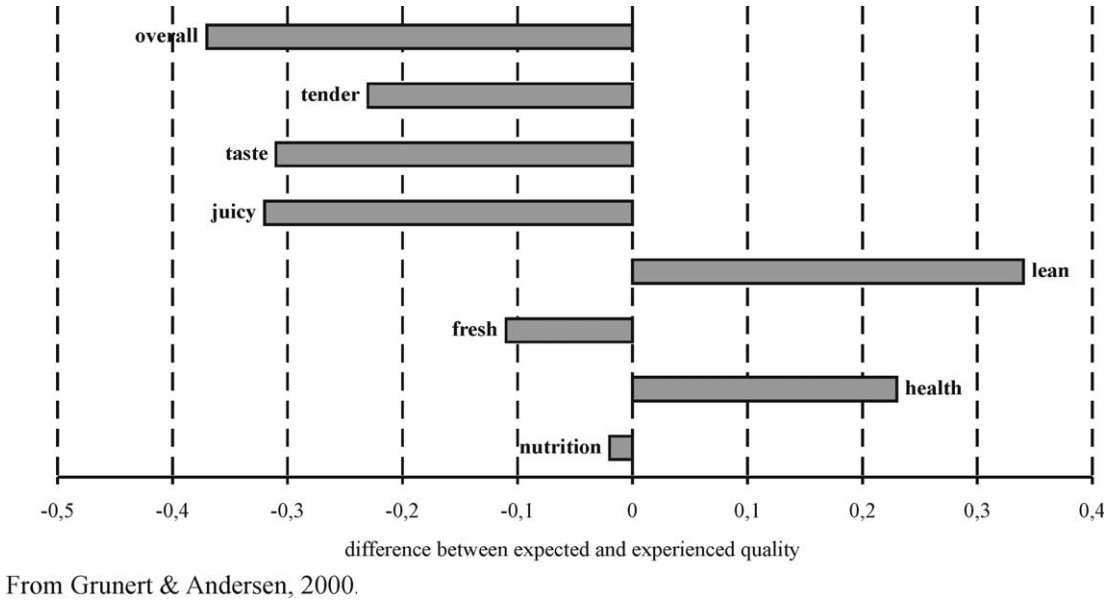


Fig. 8. Differences between expected and experienced quality for organic pork. From Grunert and Andersen (2000).

inferences from the label 'organic,' and these refer not only to concern for the environment and health, but also to animal welfare and better taste. Secondly, positive inferences do not necessarily lead to a purchase if consumers do not think that the trade-off between give and get components is sufficiently favourable.

The fact that consumers associate organic production not only with good health, animal welfare and concern for the environment, but also with good taste means that the characteristic 'organic' is no longer only a credence characteristic, but is also partly an experience characteristic, where expectations can be confirmed or disconfirmed after the purchase. Where consumers have (perhaps unrealistic) expectations about the better taste of organic products, a disconfirmation of this expectation raises another potential barrier to organic demand.

In a choice experiment, where respondents had to choose between conventional and organic pork, those choosing the organic variety expected it to be of better quality across all quality dimensions, including taste and tenderness (Grunert & Andersen, 2000). However, as shown in Fig. 8, the quality experienced after preparing and eating the organic pork generally fell short of expectations.

The study shows clearly the pitfalls of positioning a product on process characteristics, which, objectively speaking, have little or unclear effects on those quality dimensions of the product which are accessible to consumer experience. Process characteristics may affect the formation of quality expectations more as a general quality indicator than as a singular attribute. Part of this may be due to the paucity of other extrinsic cues in evaluating meat quality, but even with branded products there is widespread evidence that consumers overestimate the predictiveness of such characteristics.

## 4. Conclusions

We have provided evidence on the way in which European consumers evaluate the quality of meat. We have shown that consumers have difficulty in evaluating meat quality, resulting in uncertainty and dissatisfaction. We have concluded that there is ample room for the development of differentiated products, both in terms of improved eating quality, positive health effects, added convenience and desirable process characteristics.

However, product development is difficult and risky. Most new products launched on consumer markets are failures. While the exact figures vary a great deal (and naturally depend on the way one defines success and failure), it is commonly accepted that the failure rate for new products on consumer food markets is somewhere between 60 and 80%. Having success with new products, also in the meat sector, requires constant input from the market, and, on consumer markets, especially from consumers. The potential for successful new products can be tapped better by *consumer-led* product development—product development, where the development of new product ideas is based on input from consumers, and where the screening of ideas, their development into product concepts, the development and testing of prototypes, the development of the overall marketing mix and finally the launch on the market all are consumer-led.

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