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Beliefs, attitude and behaviour towards fresh meat consumption in Belgium: empirical evidence from a consumer survey

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Abstract

Several distinct forces have recently impacted on meat consumption and consumer attitude towards meat in many European countries. This article focuses on assessing consumer beliefs, attitude and behaviour towards fresh beef, pork and poultry meat. The methodology deals with quantitative marketing research through a survey with 320 fresh meat consumers in Belgium. Data analysis includes descriptive profile analysis, factor analysis and statistical validation of perceived associations by means of chi-square, *F*- and *t*-statistics. The analysis reveals the importance of safety-related meat attributes in impacting beef and pork consumption since the BSE-crisis and towards the future. Based on the results, it can be expected that the future of fresh meat consumption will be determined by the ability of the beef and pork sector to produce, deliver and guarantee products that are intrinsically safe, and moreover perceived as such by consumers. Specifically for pork, leanness is an important issue. Both for pork and poultry, animal welfare and acceptable production methods emerge as key attention points towards the future.

Keywords: Meat; Consumer behaviour; Survey; Belgium

1. Introduction

Meat consumption, as well as consumer behaviour and attitude towards meat have been heavily visited as research subjects for many years. During recent years, even more attention has been paid to this field of research than before. The major grounds for this increased interest lie in distinct changes at consumer level, as well as in consecutive crises and problems of image that affect the meat sector on a regular basis. Several authors indicate that noticed decreases of fresh meat consumption in different countries pertain mainly to structural changes, i.e. changing taste and preference patterns at consumer level (e.g. Burton, Dorsett & Young, 1996; Rickertsen, 1996; von Alvensleben, 1997; Young, 1996). Other authors refer to scandals, adverse media attention or negative publicity (e.g. Hoff & Claes, 1997; Strak, Ward & Hallam, 1997; Tilston, Sear, Neale & Gregson, 1992) as well as to a lack of responsiveness by the meat sector (von Alvensleben, 1995) as the principal causes of meat consumption decline, especially during the last decade.

All of the mentioned causes of the meat consumption decline have potentially impacted on consumer attitude as an intermediate effect, as exemplified in, e.g. Richardson, Shepherd, and Elliman (1993), Richardson, MacFie and Shepherd (1994) and Beardsworth and Keil (1991, 1993). A multitude of definitions of attitude is available in literature. Attitudes put people into a frame of mind of liking or disliking an object, moving towards or away from it (Kotler, 1996). Attitudes can be conceptualised as resulting from the combination of the attributes or characteristics that an object possesses. As such, attitudes result from the multiple attributes that consumers perceive in a product (Mowen, 1993). Attributes also differ in importance to different consumers. Attribute importance is defined as a person's general assessment of the significance of an attribute for products of a certain type (MacKenzie, 1986). Whereas beliefs are the cognitive knowledge that consumers have linking attributes, benefits, and objects, attitudes are the feelings or affective responses. The relationship between attitudes and behaviour has been the subject of extensive research described in the consumer behaviour and social psychology literature. The vast amount

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of response hierarchy models that have been presented in literature all share the idea of three underlying dimensions: a cognitive (knowledge, knowing), an affective (attitude, feeling) and a conative (intention and purchase, doing) stage. Based on empirical studies, no clear conclusions can be drawn with respect to the hierarchy of effects or the order of the three stages: belief, attitude and behaviour (Barry & Howard, 1990). The standard learning hierarchy or high involvement theory (Colley, 1961; Lavidge & Steiner, 1961; McGuire, 1978; Preston & Thorson, 1984; Strong, 1925) pertains that behaviour follows affect which follows belief. However, many consumer researchers have been highly pessimistic about the ability of attitudes to predict intended or overt behaviour. Alternative theories have been presented by Krugman (1965), Ray et al. (1973), Zajonc and Markus (1982) or Vaughn (1986). The so-called low involvement hierarchy by Krugman (1965) refers to consumers as passive and disinterested recipients of information, resulting in consumers resorting to limited problem solving and less extensive alternative evaluation (Engel, Blackwell & Miniard, 1986).

This article examines beliefs, attitude and behaviour towards fresh meat based on a survey with meat consumers in Belgium. The objectives of the research are twofold. The first objective consists of quantitatively assessing consumer attitude towards fresh beef, pork and poultry on a multiple attribute list resulting from literature review and qualitative exploratory research. The second objective deals with investigating associations between consumer attitude, factual and claimed behaviour, as well as consumption intentions for the future.

The paper consecutively includes the description of the research methodology and the presentation of the results. The major findings of this research are reported in accordance with the stated objectives. In the discussion section, specific attention is paid to linking results to previously reported findings and to the different viewpoints concerning the hierarchy of effects. Finally, implications for the meat industry and limitations of this research are indicated.

2. Research methodology

The research is based on both secondary and primary data collection. The secondary data include consumption figures from the GfK household panel in Belgium. The major part of the data however are primary in nature. Exploratory primary data were collected through qualitative focus group research in March 1997. Focus groups provided insights in consumer decision making and attitude towards meat. The results of this exploratory research (Verbeke & Viaene, 1998a,b) served as a major source of input for further quantitative data gathering, which constitutes the subject of this article.

Primary quantitative data were gathered through a questionnaire-based survey with meat consumers in Belgium. The survey, with field work in April 1998, included 320 personal interviews, of which 303 were usable for analysis. Respondents were selected using a quota sampling method with age and gender as quota control variables. The characteristics of the sample with respect to the quota control variables are presented in Table 1. Women are slightly over-sampled in comparison with the distribution in the population. This is however judged to be reasonable in food-related consumer research since women constitute the larger part of the responsible persons for food purchases within a household. The sample is almost equally spread over four age categories and further includes respondents from different household sizes, places of living and education levels.

The survey instrument consisted of a questionnaire containing closed end questions with answering categories based on preliminary literature review and the qualitative exploratory research. First, respondents were asked to report their fresh meat consumption in the past and their intentions for the future. The self-reported behaviour during the previous years is further referred to as "claimed behaviour".

Second, fresh meat attribute importance was assessed through the pick any scaling technique (Van Kenhove, 1995). Respondents were confronted with a list of 16 fresh meat attributes. They were asked to pick the five most important attributes, and to rank those attributes in order of importance with respect to making a decision about consuming fresh meat.

Third, the perception of beef, pork and poultry on a multi-attribute scale was assessed. The attributes were accompanied by a 7-point semantic differential scale with end points associated with bipolar labels. The semantic differential scale (Osgood, Suci & Tannenbaum, 1957) is an itemized rating scale, that is widely accepted as an attitude measurement scale (Churchill, 1983; Malhotra, 1996; Pinson, 1983). The scale requires the respondent to position his/her answer between two opposite poles, which have a semantic meaning. From

Table 1
Characteristics of the sample on quota variables

	Male		Female	
	n [a]	%	n [a]	%
Age groups				
≤30 years	35	27.1	44	25.3
31–40 years	32	24.8	40	23.0
41–50 years	28	21.7	48	27.6
> 50 years	34	26.4	42	24.1
Total	129 (or 42.6%)	100.0	174 (or 57.4%)	100.0

[a] $n = 303$.

the previously mentioned list of 16 attributes, the attributes "freshness" and "availability" were omitted at this stage. Test surveys had namely revealed that the semantic meaning of a bipolar label on these attributes (i.e. "not fresh–fresh" and "limited available–largely available") was judged by respondents to be confusing and having few sense.

The questionnaire was pre-tested, modified and refined before starting the fieldwork. After editing and coding the questionnaires, the data were analysed by means of SPSS7.5 (SPSS, 1998). The analysis includes profile analysis with comparison of average attribute ratings, factor analysis, cross-tabulation with chi-square statistics and independent samples *t*-tests for comparison of means. The presentation of the results focuses on perceived associations and relationships with as decision rule the rejection of the null hypothesis at the 5% or lower level of significance.

3. Empirical results

The presentation of the empirical results is split up in three parts. The focus is first on findings related to consumer behaviour. Facts on beef, pork and poultry consumption are presented and linked to claimed behaviour and behavioural intentions from the survey. Second, the discussion focuses on consumer attitude and beliefs, including attribute importance, the results of profile analysis and factor analysis. Third, perceived associations between behaviour and attitude are presented and discussed.

3.1. Consumer behaviour

Household consumption data from the GfK-panel (GfK, 1998) report factual behaviour related to at-home meat consumption in Belgium. Consumption levels fell considerably for most fresh meat types during the last three years. Beef consumption fell 18% during the period 1995–1997. Per capita at-home pork consumption decreased 7% during the same period. For poultry meat, a decrease with 8% is reported. Also for other fresh meat types, like veal, lamb, horse and organ meat, considerable decreases were noticed. The only increase was seen for meat mixture, i.e. all further processed fresh meat products and preparations with mixed minced meat: up 21% during 1995–1997. This increase exemplifies the trend of increased variety seeking behaviour and convenience by today's consumers.

In the survey, more than one quarter (26%) of the respondents claimed to have decreased their total meat consumption as compared to the same period of the year previous to the data collection. About 23% of the sample indicated to have substituted fresh meat types. In 63% of the cases where consumption of a specific fresh meat type was named to have decreased, beef was concerned. Pork was mentioned in 20% of the cases. On the other hand, poultry meat was mentioned in 69% of the cases as the fresh meat that appeared on the menu in favour of beef or pork. With respect to the future, one third (32%) of the respondents indicated an intention to decrease their total meat consumption during the year following the survey. About 16% of the total sample respondents reported to intend to substitute fresh meat. Beef was mentioned in 55% and pork in 27% of the cases as the fresh meat that will be subject to decreased consumption in the near future. Poultry was named in 58% of the cases as the meat type of which the respondent intends to increase his/her consumption.

3.2. Consumer attitude

Consumer attitude to beef, pork and poultry was assessed through investigating consumer perception on 16 fresh meat product attributes that were generated from qualitative exploratory research and literature review. First, attribute importance was assessed. The rank of importance of the attributes is included in Table 2. The top five important attributes for fresh meat in general were in descending rank order: "quality", "taste", "freshness", "free of hormones", and "healthiness". Significant associations between attribute importance and socio-demographic variables were discovered. Male consumers attached more importance to the attributes "taste" ($\chi^2 = 3.982$; $p = 0.046$), "safety" ($\chi^2 = 4.985$; $p = 0.026$) and "animal friendly" ($\chi^2 = 4.233$; $p = 0.040$). "Leanness" was significantly more important to female meat consumers ($\chi^2 = 4.694$; $p = 0.030$). The below 30 age group attached significantly more importance to "taste" ($\chi^2 = 29.343$; $p = 0.000$), and less importance to "free of hormones" ($\chi^2 = 17.185$; $p = 0.001$) and "free of harmful substances" ($\chi^2 = 14.601$; $p = 0.002$) as compared to the older consumer categories.

Fig. 1 depicts the average attribute ratings for fresh beef, pork and poultry meat. The attributes are presented in descending order of importance to the consumer. The analysis of the profiles based on the mean semantic differential scale scores leads to four conclusions. First, beef scored worst on all safety-related attributes: "safe", "free of hormones", "free of harmful substances" and "trustworthiness". Beef was moreover perceived as the most expensive fresh meat type. Second, pork scored worst on three of the top five important attributes: "taste", "quality", and "healthiness". On "safety" and safety-related attributes like "trustworthiness", "hormones" and "harmful substances", pork was rated between beef and poultry. Third, poultry meat was best perceived on most attributes. The only exception is the perception on "animal friendly", where poultry meat scored worst as compared to beef and pork. Fourth, no distinct differences in beef, pork and

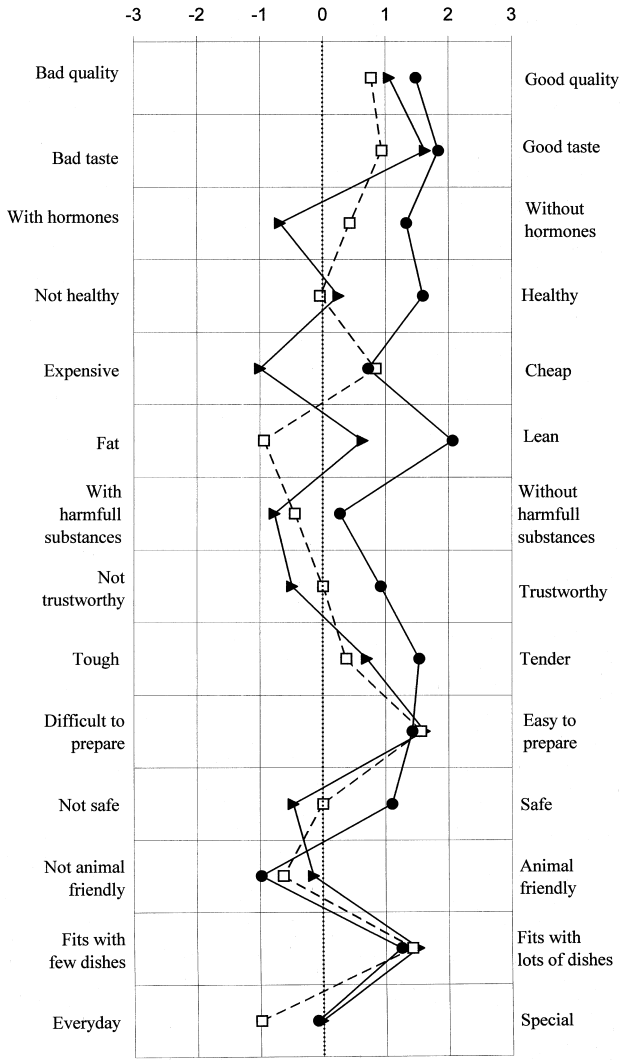

Fig. 1. Attribute profiles of beef, pork and poultry: average attribute ratings on 7-point semantic differential scale ($n = 303$). Legend: ▲ = beef; □ = pork; ● = poultry.

poultry perception on the convenience-related attributes "fitness of preparation" with different dishes and "ease of preparations" were found based on inspection of the profiles.

The perceived differences in average attribute ratings for the three fresh meat types were statistically validated through a two-stage GLM (General Linear Model–General Factorial) procedure. Results are displayed in Table 2. First, the null hypothesis of equality of the three average ratings was tested by means of the *F*-test. Only for the item "difficult–easy to prepare" the null hypothesis cannot be rejected, which indicates that the three meat types were equally rated on this attribute. Second, the differences between two average ratings were evaluated by means of Tukey's honestly significant difference (Tukey–HSD) multiple comparison test. The average ratings for beef, pork and poultry differed for the greater part of the attributes. Beef and poultry meat did not differ significantly on "bad–good taste" and "everyday–special", both being rated significantly better than pork. The perception of pork and beef, and of pork and poultry, did not statistically differ according to "fitness of preparation".

The next step in the analysis of consumer attitude consisted of conducting factor analysis (Dunteman, 1989) in order to assess relationships among sets of interrelated attributes for the three considered fresh meat types (Table 3). The specific aim for conducting factor analysis was to identify the underlying dimensions that constitute the image of the different fresh meat types. For each of the three meat types, Bartlett's test of sphericity leads to reject the null hypothesis that the attributes are uncorrelated in the sample. Additionally, the high values of the Kaiser–Meyer–Olkin (KMO) measure of sampling adequacy indicate that conducting factor analysis on the data is appropriate. The factors were extracted through principal component analysis. Retaining factors with eigen-values greater than one resulted in a three-factor solution for each of the three meat types. The three-factor solution for beef, pork and poultry accounted for, respectively, 55, 54 and 48% of the variance in the original data. The varimax procedure of factor rotation was used to enhance the interpretability of the factors.

The factors are difficult to label since the three-factor pattern shows both similarities and noticeable differences over the three meat types. Both for beef, pork and poultry, one factor can be labelled as a "safety factor", another one as a "convenience factor", and the third factor as an "auxiliary factor" of which the interpretation differs depending on the fresh meat considered. The "auxiliary factors" for beef and pork include only one attribute that loads high on it. Although factors with less than three variables may be considered unstable (Tabachnick & Fidell, 1996), the high loading of the attributes in these factors (> 0.80) allows to negate much of this concern (McGoldrick, Betts, & Keeling, 1998).

For beef, the first factor, accounting for 35% of variance, concerns consumer perception of safety. Besides safety-related attributes as "free of hormones" or "free of harmful substance", "safety" and "trustworthiness", also "quality" and "animal friendliness" load high on this factor. The "convenience factor", accounting for 12% of variance, includes "ease of preparation" and "fitness of preparation" as well as "tenderness". The third or "auxiliary factor", accounting for 8% of the variance, concerns the perception of beef as the meat for special occasions.

The "safety factor" for pork also accounts for 35% of the variance. Two differences between the "safety factor" for pork and that for beef are noticed. First, the perception of "leanness" loads high on the pork "safety factor", and second, the perception of "quality" does

Table 2
Consumer perception of fresh meat attributes, *F*-test for equality of means, mean differences, and Tukey–HSD-test (significance level) for pairwise comparison of means [a]

Rank [b]	Bipolar semantic differential labels	Mean difference		
		Pork vs. beef	Pork vs. poultry	Beef vs. poultry
1	Bad–good quality ($F=23.11^{***}$)[c]	-0.29^{*} [c]	-0.71^{**}	-0.43^{**}
2	Bad–good taste ($F=36.66^{***}$)	-0.69^{**}	-0.90^{**}	−0.21
4	With–without hormones ($F=126.22^{***}$)	1.11^{**}	-0.90^{**}	-2.01^{**}
5	Not healthy–healthy ($F=114.94^{***}$)	-0.30^{**}	-1.64^{**}	-1.34^{**}
6	Expensive–cheap ($F=120.10^{***}$)	1.84^{**}	0.11	-1.72^{**}
7	Fat–lean ($F=273.52^{***}$)	-1.57^{**}	-3.00^{**}	-1.72^{**}
8	With–without harmful substances ($F=47.53^{***}$)	0.32^{**}	-0.72^{**}	-1.04^{**}
9	Not trustworthy–trustworthy ($F=74.14^{***}$)	0.51^{**}	-0.91^{**}	-1.42^{**}
10	Tough–tender ($F=47.79^{***}$)	-0.32^{*}	-1.15^{**}	-0.83^{**}
11	Difficult to prepare–easy to prepare ($F=2.75$)	−0.06	0.13	0.19
12	Not safe–safe ($F=92.75^{***}$)	-0.56^{**}	-1.01^{**}	-1.57^{**}
13	Not animal friendly–animal friendly ($F=33.15^{***}$)	-0.48^{**}	0.35^{**}	0.83^{**}
14	Fits with few–fits with lots of dishes ($F=3.87^{*}$)	−0.10	0.17	0.27^{*}
15	Everyday–special ($F=50.42^{***}$)	-0.97^{**}	-1.09^{**}	−0.12

[a] $n=303$.
[b] Two attributes are included in ranking but not in semantic differential: "freshness" = 3, "availability" = 16.
[c] Significance level: $^{*}=p<0.05$, $^{**}=p<0.01$.

not. "Taste" and "quality" perception of pork load high on the "convenience factor", that accounts for 11% of variance. The third factor for pork concerns "price" perception and accounts for 8% of variance.

Contrary to beef and pork, the "safety factor" for poultry accounts for no more than 28% of variance. Only four attributes load high on this factor: "safety", "trustworthiness", "free of harmful substances" and "animal friendliness". The second important factor for poultry is the "auxiliary factor". This factor accounts for 12% of variance and includes the perception of poultry meat on "taste", "quality", "healthiness", "leanness" and "free of hormones". The "convenience factor" is the third important factor for poultry, accounting for 9% of variance. Besides "ease of preparation" and "fitness of preparation", also the perception of "price" and "tenderness" are assigned to this factor.

3.3. Behaviour and attitude associations

Significant associations between attribute importance and claimed past and future behaviour were assessed through cross-tabulations and the chi-square statistic (Table 4). The chi-square statistics and associated *p*-values test for the null hypothesis of no association between the variables. Consumers who included "leanness" in their top five important meat attributes claimed to have decreased their meat consumption significantly more as compared to the year previous to the survey. Consumers who attached importance to "free of hormones" reported significantly higher intentions to decrease their meat consumption in the near future. On the other hand, consumers who attached more importance to "taste" and "ease of preparation" significantly less intended to decrease their meat consumption.

Significant associations between attribute ratings and claimed past (Table 5) and future (Table 6) behaviour were assessed through independent samples *t*-tests for comparison of means. Claimed meat consumption from the past was significantly associated with beef perception on ten attributes and with pork perception on four attributes. The less consumers believed that beef has a "good taste" and "good quality", and that beef is "lean", "safe", "healthy", "trustworthy", produced in an "animal friendly" way and "without hormones" or other "harmful substances", the more they claimed to have decreased meat consumption.

Similar conclusions can be drawn related to the perception of "trustworthiness", "animal friendliness" and "healthiness" of pork. The stronger the belief in these attributes, the less consumers claimed to have decreased their meat consumption. Additionally, the higher the association of pork with the attribute "cheap", the more consumers claimed to have decreased fresh meat consumption.

No significant associations between claimed meat consumption decrease and poultry perception on any of the included attributes were found. Meat consumption intention for the near future was significantly associated with beef perception on eight attributes, with pork perception on six attributes and with poultry perception on two attributes. The less consumers believed that beef has a "good taste" and "good quality", and that beef is "safe", "healthy", "trustworthy", "animal friendly" produced and "without hormones" or other "harmful substances", the more they reported the intention to

Table 3
Factor analysis of attribute perception for beef, pork and poultry [a]

	Factor 1	Factor 2	Factor 3
Beef			
Attributes with loading > 0.50	Quality (0.67)	Ease (0.71)	Special (0.83)
	Free of hormones (0.77)	Fitness (0.74)	
	Safety (0.85)	Tenderness (0.61)	
	Trustworthiness (0.86)		
	Healthiness (0.79)		
	Animal friendliness (0.60)		
	Free of harmful substances (0.82)		
Explained variance per factor	35.2%	12.1%	7.8%
Bartlett-test of sphericity = 1186.43**, Kaiser–Meyer–Olkin measure of sampling adequacy = 0.86			
Total variance accounted for = 55.1%; attributes not assigned (no loading > 0.50): taste, leanness, price			
Pork			
Attributes with loading > 0.50	Free of hormones (0.58)	Taste (0.72)	Price (0.81)
	Safety (0.74)	Quality (0.65)	
	Trustworthiness (0.77)	Ease (0.55)	
	Healthiness (0.68)	Fitness (0.53)	
	Animal friendliness (0.71)	Tenderness (0.67)	
	Free of harmful substances (0.81)		
	Leanness (0.56)		
Explained variance per factor	34.9%	10.7%	8.4%
Bartlett-test of sphericity = 1063.59**, Kaiser–Meyer–Olkin measure of sampling adequacy = 0.85			
Total variance accounted for = 54.1%; attributes not assigned (no loading > 0.50): special			
Poultry			
Attributes with loading > 0.50		Taste (0.66)	Price (0.62)
	Safety (0.71)	Quality (0.62)	Ease (0.77)
	Trustworthiness (0.74)	Healthiness (0.53)	Fitness (0.57)
	Animal friendliness (0.67)	Leanness (0.50)	Tenderness (0.53)
	Free of harmful substances (0.83)	Free of hormones (0.53)	
Explained variance per factor	27.5%	11.7%	8.9%
Bartlett-test of sphericity = 725.51**, Kaiser–Meyer–Olkin measure of sampling adequacy = 0.80			
Total variance accounted for = 48.1%; attributes not assigned (no loading > 0.50): special			

[a] Significance levels: $*p < 0.05$, $**p < 0.01$.

Table 4
Significant associations between claimed behaviour and intentions *and* attribute importance [a]

	I have decreased meat consumption as compared to last year		
	Yes	No	Chi-square/significance [b]
Attribute in top five			
Leanness	44.3	28.1	6.99**
	I intend to decrease meat consumption in the near future		
	Yes	No	Chi-square/significance [b]
Free of hormones	63.9	45.1	9.30**
Taste	42.3	55.8	4.85*
Ease of preparation	6.2	17.5	7.04**

[a] % of respondents, $n = 303$.
[b] Significance level: $* = p < 0.05$, $** = p < 0.01$.

decrease their meat consumption in the future. The conclusion is similar as to the perception of pork, except for the attributes "taste" and "quality". Two significant associations between the perception of poultry and meat consumption intention were found. Consumers intended to decrease their meat consumption more as they perceived poultry meat more as "not healthy" and as produced in a "not animal friendly" way.

4. Discussion

The evolution of consumption figures from household panel data indicates a considerable consumption decrease for fresh beef and pork during recent years. This corroborates with the behaviour that respondents claimed in the survey. Both factual and claimed behaviour point out that the consumption of beef and pork suffered.

Analyses of attribute rating profiles, principal components and associations between claimed behaviour and attribute beliefs, reveal that problems of the beef image are mainly linked to the bad perception of beef safety. Safety constitutes the most important beef image dimension in the factor analysis and findings even suggest

Table 5
Significant associations between claimed behaviour and attribute beliefs, mean attribute ratings on 7-point semantic differential scale and Independent Samples t-test for equality of means [a]

	I have decreased meat consumption as compared to last year		
	Yes	No	t-value/ significance [b]
Beef			
Bad–good taste	0.87	1.88	4.45**
Bad–good quality	0.43	1.27	3.76**
With–without hormones	−1.55	−0.39	4.74**
Fat–lean	0.31	0.74	2.01*
Everyday–special	0.39	−0.16	−2.28*
Not safe–safe	−1.23	−0.21	4.22**
Not trustworthy–trustworthy	−1.38	−0.20	4.70**
Not healthy–healthy	−0.28	0.44	3.18**
Not animal friendly–animal friendly	−0.59	−0.01	2.34*
With–without harmful substances	−1.51	−0.52	4.26**
Pork			
Expensive–cheap	1.17	0.73	−2.21*
Not trustworthy–trustworthy	−0.31	0.13	2.00*
Not healthy–healthy	−0.45	0.08	2.45*
Not animal friendly–animal friendly	−1.04	−0.50	2.26*

[a] $n = 303$.
[b] Significance level: * = $p < 0.05$, ** = $p < 0.01$.

Table 6
Significant associations between intentions and attribute beliefs, mean attribute ratings on 7-point semantic differential scale and Independent Samples t-test for equality of means [a]

	I intend to decrease meat consumption in the near future		
	Yes	No	t-value/ significance [b]
Beef			
Bad–good taste	1.25	1.80	2.65**
Bad–good quality	0.53	1.28	3.54**
With–without hormones	−1.55	−0.29	5.54**
Not safe–safe	−1.12	−0.18	4.15**
Not trustworthy–trustwonhy	−1.14	−0.19	4.03**
Not healthy–healthy	−0.39	0.55	4.64**
Not animal friendly–animal friendly	−0.50	0.01	2.14*
With–without harmful substances	−1.52	−0.42	5.12**
Pork			
With–without hormones	0.12	0.56	1.98*
Fat–lean	−1.26	−0.80	2.18*
Not safe–safe	−0.26	0.24	2.92**
Not trustworthy–trustworthy	−0.28	0.16	2.13*
Not animal friendly–animal friendly	−0.99	−0.47	2.28*
With–without harmful substances	−0.83	−0.28	2.60**
Poultry			
Not healthy–healthy	1.31	1.72	2.20*
Not animal friendly–animal friendly	−1.33	−0.82	2.29*

[a] $n = 303$.
[b] Significance level: * = $p < 0.05$, ** = $p < 0.01$.

that the perception of beef quality is mainly determined by its perceived safety. The emergence of the safety issue from the consumer viewpoint likely results from the incidence of both hormone abuse and BSE, which have led to a considerable body of negative publicity in mass media.

Also for pork, a fairly good corroboration between facts and claimed behaviour is found. Problems related to the pork image mainly pertain to the perception that pork is fat, has a bad taste and an overall low perceived quality. Specifically for pork, the perception of the economic factor "price" comes about as an item of importance and discussion. The fact that pork is considered as the economically most attractive meat possibly explains the moderate consumption decline opposite to what one would have expected based on its bad rating on safety-related and other important attributes. However, a strong perception of pork as cheap meat appeared to be associated with higher claimed consumption decreases, which potentially refers to associations of low prices with low perceived quality in consumer's minds (McConnel, 1968; Mowen, 1993).

Consumption figures indicate that also poultry meat consumption decreased during the last three years, while one would expect a more favourable evolution from claimed behaviour and attribute ratings. Under the assumption that the household panel data are correct, this phenomenon can be explained by the possibility that the respondents have focused on reporting substitution effects, without reasoning in terms of absolute consumption figures. As such, it seems reasonable that poultry meat consumption has decreased in absolute terms, while having increased its perceived share in the meat basket of the consumer. The relative success of poultry can be related to its favourable perception on most attributes, giving poultry the image of the safest fresh meat alternative at present.

It should be noted from Tables 5 and 6 that more attributes are significant for beef than pork than poultry, for both claimed consumption from the past and consumption intentions towards the future. Also the statistical significance of the associations is highest for beef. Related to the theory of involvement that according to Engel et al. (1986) involves pertinence and relevance to the individual, the following issue is raised. Beef appears to have been thought of more or with greater involvement than pork and poultry during the year prior to the survey, i.e. 1997 or the year with the first BSE-cases discovered in Belgium. However towards the future, the number of significant beef attributes is lower as compared to claimed consumption from the past. On the contrary, more attributes are found to be significant for pork and poultry consumption intentions towards the future than there were for claimed past behaviour. Also different attributes are involved in decision making for the future as compared to the past.

Specifically towards the future, it can be expected that consumers will go through more extensive evaluation of pork and poultry. These findings corroborate with Bauer (1960) and Vaugh and Rothschild (1979) who indicated that pertinence and relevance to individuals are activated as risks of decisions are perceived to be high or a sense of uneasiness or fear arises that a wrong decision will be made.

5. Conclusions

In the present study, a survey-based approach with descriptive analyses and appropriate statistical validation techniques is used to assess consumer beliefs, attitude and behaviour towards fresh meat The findings of the quantitative survey corroborate with the insights from previous qualitative research in that no such thing as an attitude towards fresh meat or a fresh meat image exists, but that the different meat types, as well as their specific situation and problems, have to be considered separately.

The research described in this paper leads to five conclusions with relevance to the meat industry. First, associations between intentions and attribute importance reveal that meat consumers still appreciate meat in general because of its taste and convenience. The finding related to beef taste, especially, corroborates particularly well with previous findings by Richardson et al. (1994), who found that UK consumers who had increased their consumption of beef in the early 1990s had a stronger attitude towards taste. Second, the future fresh meat consumption seems however to be mainly determined by facts that relate to safety, and even more by the perception of these facts by consumers. Safety emerges as the most important dimension, especially for beef and pork. Third, consumer trust in beef appears to be heavily damaged. Based on what is learned from the reported intentions, a regain of market share can hardly be expected as long as clear, reliable and sustainable safety guarantees cannot be delivered. Fourth, consumer concerns about pork focus not only on safety issues, but also on leanness and animal welfare. Hence, the outlook for pork consumption and the pork sector seems also to be determined by the ability to deliver safe meat, which also means lean meat that is produced through acceptable production methods. Fifth, the success of poultry meat in the past appears to have been determined by its healthy image. This healthy perception needs to be maintained in order to prolong this success in the future. Seemingly paramount concerns for poultry deal with animal welfare and animal friendly production methods. Hence, the ability of the poultry industry to respond to these consumer concerns can be expected to determine its image and acceptability in the near future.

The present study faces some limitations that are inherent to the research methodology and the nature of the data. First, it should be noted that self-reported behaviour may be subject to tendencies of socially desirable answering patterns or general beliefs. Respondents may have mirrored widespread ideas and frequently reported beliefs related to meat production and consumption. A valuable approach to data collection that enables to overcome these concerns, lies in the use and comparison of retail scanner data, household consumption data and self-reported attitude and behaviour by the same sample of respondents. Such data are however not available for research purposes in Belgium. Second, the analysis of the data revealed associations and relationships between variables, but not causation. This implies that our findings do not pretend to include an answer to questions relating to the sequence in the hierarchy of effects of meat beliefs, attitude and behaviour. Finally, facts and realisations in the future will have to be followed up and analysed in order to find out to what extend the reported consumer intentions fit to reality.

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