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The management of perceived risk in the food supply chain: a comparative study of retailer-led beef quality assurance schemes in Germany and Italy

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Abstract

This paper reports the findings from two exploratory case studies of retailer-led quality assurance schemes (QAS) for beef in Germany and Italy. The focus is on the potential for QAS to reduce the risks associated with fresh beef, as perceived by consumers. Results of two consumer surveys are reported, which suggest that QAS have the potential to reduce perceived risk and increase consumer confidence in specific fresh beef products, but that considerable scope remains for improving the communication of QAS, in order that specific scheme objectives are clearly understood by consumers. © 2001 Elsevier Science Inc. All rights reserved.

1. Introduction

Increasing consumer concerns and the consequential costs imposed on society as a result of food safety incidents have led to an increased public focus on the causes, effects and prevention of both microbiological and non-microbiological hazards. In developed countries, the issue of food safety in general, and for beef in particular, has been one of the key driving forces behind a change in the role of and relationships between the key stakeholders in the supply chain, with breeders, feeders, finishers, processors, retailers, consumers and the government all grappling with the fundamental problems associated with the management of risk in the food supply chain (Fearne, 1999).

As a result, stakeholders within the beef industries of developed countries have, in recent years, been exploring a range of strategic options that both meet consumers' needs and comply with food safety legislation. One such option is quality assurance, which has been

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variously described as ''... a strategic management function concerned with the establishment of policies, standards and systems for the maintenance of quality'' (Early, 1995), and ''the assurance of quality of a product by means of a system which will manage quality into the product'' (Fidler, 1990).

Following the discovery of Bovine Spongiform Encephalophy (BSE) in the U.K. herd during the mid 1980s, and the subsequent announcement of a likely link between BSE and new variant Creutzfeld–Jakob disease (nv CJD) in 1996, the beef industry in the United Kingdom has been the focus of intense scrutiny and activity by both public and private institutions in order to reassure consumers and restore lost markets. Such private institutions have included both industry-wide and retailer-led QAS.

The key drivers for the development of quality assurance schemes in the United Kingdom beef industry were associated with changes in consumer purchasing behavior (eating less red meat due to concerns about diet and health); changes in the structure of the industry (retailers assuming a position of considerable power and influence in the supply chain); increased public focus on food safety (pre- and post-BSE) and changing food safety legislation (due diligence) (Fearne, 1998). A common element in all of these is the nature and level of perceived risk—consumers seeking to reduce the risks associated with eating beef and retailers seeking to reduce the risk of not fulfilling their customers' expectations.

However, the problems facing the beef industry and the subsequent development of quality assurance schemes are not confined to the United Kingdom. Several studies have been conducted, at a European level, which look at consumer assessment of meat quality (Benedict et al., 1996, 1998; Bredahl, Grunert, & Fertin, 1998; Becker, 2000; Glitsch, 2000), but very few have looked specifically at the assessment of safety (Henson & Northern, 2000) and none have looked exclusively at consumer attitudes towards quality assurance (QA) schemes in general and beef QA schemes in particular. The growing food safety literature has focused almost exclusively on HACCP implementation in North America and western Europe and the costs and benefits to meat processors thereof.

This paper focuses on the recent experience with retailer-led quality assurance schemes for beef in two European countries—Germany and Italy. Given the paucity of published evidence regarding the benefits of quality assurance schemes for consumers (Walley, Parsons, & Bland, 1999), the focus here is on the consumer perspective.

The paper is in four parts. In the next section, we discuss some of the theoretical issues associated with assurance schemes in general. In part three we briefly describe the research methodology adopted for the study of two cases: ''Prodotti con Amore,'' from Italy, and ''Wörther Hof'' from Germany. Part four describes the evolution of the two schemes and presents the results of consumer research designed to establish the extent to which the beef quality assurance schemes examined meet the needs of consumers in the respective countries. In the final section we draw some conclusions and identify some key areas for further research.

2. Theoretical issues associated with the perception of risk in the food supply chain

The theoretical situation of perfect information is rarely reflected in real world conditions, and imperfect information, in which both buyers and sellers have limited information, is a

more realistic description of market conditions. In addition to imperfect information, information asymmetry exists in which information is more imperfect for one party; for example, firms may have better information than consumers regarding production processes, but may not necessarily have better information on the safety attributes of a product (Antle, 1998). However, the literature acknowledges the existence of various market institutions which will counteract the effects of quality uncertainty by transferring the risk back on to the seller, namely guarantees, brands, licenses, retailer chains, reputations and private testing organizations (Akerlof, 1970; Bowbrick, 1992; Swinbank, 1993; Ogus, 1994). Quality assurance schemes can be viewed as one such institution.

Assuming that 'quality' refers to the overall mix of desirable characteristics or attributes possessed by a product, food safety can be included as one of a number of subsets (Hooker & Caswell, 1996). Some attributes of food products are obvious some cannot be ascertained immediately. Consumers can establish the nature of *search* attributes, before purchase through examination or research; but *experience* attributes can only be determined after purchase, and *credence* attributes cannot be determined even after purchase and consumption (Weiss, 1995; Roberts et al., 1996). The provision of information, such as branding and labeling, has the potential to change some *experience* or *credence* goods into *search* goods.

However, consumers have limited cognitive ability to process and act on large amounts of complex information (Henson & Traill, 1993). The reactions of consumers to major food safety issues demonstrates that behavior is influenced not just by scientific evidence on the actual effects of an unsafe food product, but also by their attitudes and beliefs (Wu et al., 1984; Adams, 1995; Shepherd & Raats, 1996), different conditions (Bauer, 1967; Adams, 1995), the type of hazard (Frewer et al., 1994) and their tendency to underestimate their own susceptibility to risks (optimistic bias) in relation to others' (Frewer et al., 1994; Sparks & Shepherd, 1994). As a consequence, the concept of perceived risk (Bauer, 1967) rather than objective risk is viewed by consumer behaviorists as being more powerful in explaining consumer purchase behavior.

Risk is defined in terms of a consumer's perceptions of the *uncertainty* and adverse *consequences* of buying a product or service (Dowling & Staelin, 1994). Consumers are more likely to be affected by the size of the consequence rather than the probability, with many appearing to disregard the probability altogether (Mitchell, 1998). In other words, purchases are made more often to avoid mistakes rather than to maximize utility (Mitchell, 1998), while consumers use information as a risk reducing strategy (Mitchell & McGoldrick, 1996).

Applying the concept of perceived risk, the motives behind the adoption of quality assurance schemes by agribusiness organizations can result in a novel view of supply chain behavior. Overall perceived risk is composed of two components: product category risk, which reflects a person's perception of risk inherent in purchasing any particular product in a specific product category (beef), and product specific risk which is the perception of risk associated with a particular product within the product class (a supermarket own label beef). Perceived risk is traditionally conceptualized as being multidimensional, with overall risk subdivided into different types of risk: performance (sometimes regarded as a surrogate for overall risk), physical, financial, psychosocial and time (Mitchell, 1998). A non-exclusive

Table 1
The relationship between beef product attributes and perceived risk

Beef product attributes	Type of risk
Food safety	**Physical**
Microbiological/non-microbiological	Acute and chronic illness
Nutrition	**Physical**
Calories, vitamins, minerals, fiber	Health
Value	**Performance, time**
Appearance, convenience, taste	Preparation, expected taste
Package	**Time**
Labeling, other product information	Information search
Process	**Psychosocial**
Animal welfare, organic, biotechnology	Self-esteem relating to own beliefs
Price	**Financial**

Source: Adapted from Hooker and Caswell (1996) and Mitchell (1998).

relationship exists between product attributes and different risks associated with a purchase, dependent on individual consumers' perceptions. Table 1 illustrates the relationship between beef product attributes and perceived risk dimensions.

The introduction of quality assurance schemes and traceability throughout the supply chain can be viewed as a strategic response by the beef industry to the impact of an increase in consumers' overall risk perceptions of beef. Such schemes deliver information that aims to manage and minimize consumer prepurchase risk perception and consequent behavior. The main objective behind industry-wide assurance schemes is to reduce consumers' product category risk associated with commodity beef, and are primarily concerned with reducing consumers' perception of risk associated with credence attributes such as food safety and process attributes.

In the case of branded beef, retailer or manufacturer-led assurance schemes are designed to reduce both product category and product specific risk, and as such endeavor to reduce consumers' perception of risk associated with all search, experience and credence beef attributes, the success of which will result in competitive advantage over rivals. In the United Kingdom, the fresh meat category is almost exclusively own brand rather than unbranded, as defined by Davis (1992). As such, the category is seen as a key factor in the major supermarkets' attempts to differentiate themselves from the competition (Fearne, 1998). Competition among the major food retailers in the U.K. has seen an emphasis on store and product quality and high standards of service, rather than competition in terms of low prices. This focus on differentiation has led to a greater emphasis on the quality and variety in policies for own brands (Shaw, Dawson, & Blair, 1992). Quality assurance schemes were initially introduced in order to minimize the effect of consumers' risk perceptions associated with inconsistent eating quality. The focus of such schemes have changed over time to reflect consumers' changing risk perceptions, to include information in order to reduce consumers' perception of risk associated with animal welfare and production methods, and, of course, food safety. We now look at the extent to which the experiences in the U.K. have been shared elsewhere in Europe.

3. Case studies

Given that perceived risk is culturally constructed (Adams, 1995), what are the aims and objectives behind the adoption of retailer-led quality assurance schemes for beef in other countries? Is the focus of such schemes on different product attributes in response to consumers' concerns with different risk dimensions? These questions were addressed in exploratory research into quality assurance initiatives in two contrasting member states of the European Union (EU): ''Prodotti con Amore'' in Italy and ''Wörther Hof'' in Germany.

3.1. Methodology

The research was undertaken over a period of 5 months, from March 1999 to August 1999. In the first instance, desk research was undertaken to establish the key characteristics of the respective beef industries in Germany and Italy. This was followed by exploratory visits to both countries in April 1999, to establish what, if any, beef quality assurance schemes were in existence and to elicit the co-operation of the key players involved. The primary research was conducted during July and August 1999, during which time semi-structured interviews were conducted with senior management representatives of the two retail organizations concerned (Co-op in Italy and GROSSO-MAGNET in Germany); the abattoirs and a small number of beef producers, followed by a survey of 300 consumers in each country.

The trade interviews were used to establish the fundamental rationale for the schemes concerned and their subsequent operation and evolution in recent years. The consumer survey focused on establishing the level of awareness of such schemes, attitudes towards quality assurance schemes for beef and the level of interest in the schemes currently available. The questionnaire was originally drafted in English, then subsequently translated and tested prior to administration. A number of modifications were made to the questionnaire as a result of the pilot exercise, primarily with a view to reducing the time taken to complete it and to facilitate the comparison of results from the two countries.

The Italian survey was undertaken over a period of 3 days, inside a Co-op supermarket in the Laurentino area of Rome. The German survey was conducted over the same period in two GROSSO-MAGNET supermarkets in Dresden, East Germany.

3.2. Results

The results of the two case studies are presented in three parts: first we give a brief summary of consumption trends and industry structure in each country; then we describe the key elements of the two schemes, before presenting the results of the consumer research.

3.2.1. Germany: 'Wörther Hof'

3.2.1.1. Consumption trends and industry structure. In Germany, beef only accounted for 17% of total meat consumption, with pork accounting for 64% of all meat consumed during 1997, although regional differences exist due to traditional eating habits. Changes in

consumption habits and general health concerns have driven a slight reduction in meat consumption since the mid 1980s, but within this trend, consumption of beef and veal has been falling at a higher rate while consumption of poultry has increased. The average annual German beef consumption is approximately 10.1 kg, which is 3 kg lower than the European average (Statistisches Jahrbuch uber Ernahrung, 1999). The BSE crisis in the United Kingdom had a negative effect on the behavior of German consumers, and in 1996 the consumption of beef fell by more than 60% following the announcement of a link between BSE and nv CJD (Ott, 1996).

The overall slaughter industry, consisting of both private and public abattoirs, is concentrated whereas for beef, the sector is fragmented with the largest four firms only holding a combined market share of 12%. The German retail sector continues to be fragmented, with the top four retailers controlling around 30% of the market. The main distribution channel for beef are the hypermarkets who are responsible for 40% of total sales, followed by butcher shops who hold around 25% market share (Becker, Benner, & Glitsch, 1998). Meat sales are predominately traditional, with less emphasis on prepacked products, although such sales have been increasing.

3.2.1.2. The Wörther Hof quality assurance scheme. The GROSSO-MAGNET supermarket chain is part of the family owned Tengelmann group of retail outlets, the fifth largest German retailer. The growth of the Tengelmann chain has been driven by a corporate strategy based on environmental protection, in addition to which the company philosophy of GROSSO-MAGNET encompasses competitive pricing, freshness of product and a family orientation. The Wörther Hof quality assurance scheme was first introduced in 1991 as a reaction to the increasing demand for consumer protection and animal welfare production methods. The scheme sets standards for selection and traceability of animals, animal welfare and transport standards, together with processing standards that guarantee the eating quality of the meat.

Until 1999, the approval of the ''CMA-Prüfsiegel'' seal of inspection enabled the supermarket to guarantee all of these qualities. CMA is a public inspection body, designed to raise the image of German food both in terms of the quality of the product and the production processes. The retail chain has now joined the quality control system of the newly founded private certification organization ORGAINVENT, which also audits the production of organic beef and veal. All beef sold in the GROSSO-MAGNET retail outlets belongs to the ''Wörther Hof'' quality assurance scheme.

Two major farmer co-operatives supply beef and veal for the ''Wörther Hof'' quality assurance scheme, one of which is the ''Weidehof'' co-operative in Mecklenburg, West Pomerania. The ''Weidehof'' co-operative was founded in 1994, and consists of 15,000 cattle on 13,000 ha of grazing land. As well as supplying Tengelmann, the co-operative also supplies the supermarket chains REWE (Füllhorn) and Edeka (Bio-Gutfleisch). According to the individual farmers and the manager of the co-operative, the advantages of such a system mean that farmers reap the benefits of scale in production costs and are free to focus their efforts on producing quality meat while sales and marketing tasks, including transport to the abattoir, are undertaken centrally by the co-operative. The co-operative uses an independent abattoir to slaughter the cattle on their behalf; the carcasses are then sold on to the

processing plant. The processing plant Sächsische Schweiz Fleisch GmbH has been a member of the ''Wörther Hof'' quality assurance scheme for the last 3 years and has to fulfill the obligations and conditions of ORGAINVENT and the CMA, and meet additional standards set by Tengelmann. The processing plant also supplies other supermarket chains and different retail outlets. The processing plant has ISO 9002 accreditation and the ''Wörther Hof'' scheme is audited independently, by the organic certification body (ORGAINVENT).

According to the supermarket,[1] the motivation behind the adoption of a QAS was to respond to consumers' food safety and animal welfare concerns, and in turn significantly reduce potential sales losses during food safety incidents. The ''Wörther Hof'' quality assurance scheme differentiates a commodity product by reassuring consumers regarding the quality of the product and production methods. The 100% of the beef sold by GROSSO-MAGNET is branded under the ''Wörther Hof'' label.

3.2.2. Italy: Prodotti con Amore

3.2.2.1. Consumption trends and industry structure. Average annual per capita beef consumption is much higher in Italy (24 kg) than in Germany and despite that fact that beef consumption is declining, it is still the second most important meat after pork, accounting for almost one-third of all meat consumption (Istat Yearbook, 1998).

On the supply side, production of beef cattle is highly fragmented, with half of the beef producing units comprising less than 10 cattle and producing around 7% of national production, compared to the 6% of farms with over 100 animals, 100 (6% of total farms) that produce over 48% of the total Italian beef production (Istat, 1995).

Generally, the slaughtering sector is also highly fragmented, despite several years of restructuring in response to EU hygiene regulations. Nevertheless, the growing need from producers, slaughterers, and distributors to control and guarantee both origin and quality to the consumer has resulted in an increase in the level of vertical co-ordination (Brunori, 1997).

Retail concentration is not as advanced in Italy as it is in northern Europe and while the supermarkets' share of meat sales continues to increase, half of retail meat sales still pass through independent butchers. However, the expansion in the number of supermarkets has had an impact on the meat market in general and on the beef market in particular, driving the expansion and restructuring of the supply chain, in order to meet their high volume demands (Brunori, 1997).

3.2.2.2. The ''Prodotti con Amore'' quality assurance scheme. Co-op Italia is the largest food retail group in Italy accounting for about 5% of the total food expenditure in Italy, with a market share of 15% in the multiple food sector. Although Italy does not have similar legislation to that of the United Kingdom's 1990 Food Safety Act, multiple retailers are viewed as having a bigger responsibility for ensuring public health than the smaller independents, in view of the greater contractual power of the former compared to the latter.

A peculiarity of the Co-op system is that a significant proportion of its customers consist of ''stakeholders'' ensuring strong customer loyalty. Co-op's own label was created in 1978

and extended to fresh fruit and vegetables in 1988, veal in 1989 and beef in 1991 under the label ''Prodotti con Amore'' (made with love). The objectives behind the introduction of a quality assurance scheme for beef were two-fold: firstly to guarantee product safety, mainly related to hormone-free production and compliance with hygiene standards; secondly to improve product characteristics in order to meet consumers' demand for specific organoleptic attributes, such as fat content, color, flavor and texture. Concern regarding animal welfare is not prevalent in Italy.

Co-op Italia decides the general strategy and supply planning, and assumes responsibility for chain co-ordination, supervision and control. The retailer selects the abattoirs on the basis of plant suitability and technical capability, in particular facilities for ante-mortem chemical and microbiological laboratory testing. The contract between the retailer and the abattoir includes fixed standards and procedures concerning cattle transportation, slaughtering, testing and refrigeration. Abattoirs are in charge of selecting individual suitable suppliers, although Co-op Italia undertakes frequent random inspections. Supplies come from 532 breeding farms located in the area of the River Po Plain. Contracts with farmers define codes of practice in terms of feeding, hygiene, hormone-free rearing, cattle identification, general cattle welfare, animal growing times, and the choice of beef breed. Each scheme member is responsible for the continuous monitoring of his or her suppliers, ensuring traceability along the entire supply chain. The scheme is not audited independently, but the meat processor has ISO 9002 certification and receives regular audit visits from the retailer. Co-op Italia is owned by consumers and has a strong consumer franchise, which reduces the need for third party audits in order to maintain consumer confidence.

According to Co-op Italia,[2] the main motivation behind the adoption of the ''Prodotti con Amore'' label was to guarantee safety and eating quality, and in turn, generate increased consumer loyalty. The success of the scheme was tested during the height of the BSE crisis when beef sales dropped sharply but by the end of 1996, sales of ''Prodotti con Amore'' label beef had almost recovered, while overall beef sales in Italy were still depressed by about 15% to 18% (Brunori, 1997). Like the German case, 100% of fresh beef sold through the Co-op Italia chain is branded under the ''Prodotti con Amore'' label. Moreover, consistent with the trend in the U.K., own-label products in general and meat products such as ''Prodotti con Amore'' in particular are high-value high margin products in contrast with the historical tendency for own-label products to be sold as discount lines.

3.2.3. Consumer research

All of the interviews were conducted inside the respective supermarkets and respondents were screened to ensure that only people who purchased fresh beef from the respective supermarkets were included in the study. The socio-demographic characteristics of the respective samples are presented in Table 2.

While the characteristics of the specific population of interest (purchasers of fresh beef products from a specific supermarket chain) are unknown, it is unlikely that these samples are fully representative, given the skewed distribution of the age of respondents and the dominance of 'professionals' in the German sample. Thus, care should be taken when drawing inferences about the population from the sample results presented. In particular, the socio-economic characteristics of the two samples are distinctly different with the

Table 2
Sample profile (% of respondents)

Characteristic	GROSSO-MAGNET	Co-op
Gender		
Female	72	88
Male	28	12
Age		
Under 30 years	9	9
31–45 years	25	25
46–60 years	30	31
Over 60 years	36	35
Occupation		
A/B (professional)	47	27
C1/C2 (manual, semi-skilled)	11	67
D/E (unemployed, retired)	43	6
Supermarket loyalty		
Ownership of GROSSO-MAGNET reward card	66	–
Co-op membership	–	53
Last place of education		
Secondary school	75	65
University	25	28

distribution of occupation more or less 'normal' for the Italian sample but distinctly bi-polar for the German sample. Moreover, the data analysis, using ANOVA, revealed that the perceived importance of particular product attributes was not independent from occupation.

3.2.3.1. Beef consumption and purchasing behavior. Average weekly household consumption of fresh beef was significantly higher in the Italian sample (1.7 kg) than the German sample (0.27 kg). Over half of the Italian respondents claimed their households consumed at least 2 kg per week while just 18% of the German respondents said their households consumed more than 2 kg per month. The significant difference in beef consumption in the two samples is consistent with the population data for average annual per capita beef consumption.

   When asked how, if at all, their household consumption of fresh beef had changed over the past 3 years, only 18% of the German respondents said it had fallen, 4% said it had increased and 82% said it had not changed. In contrast, over half of the Italian respondents said their household consumption of fresh beef had changed, with the majority (85%) of them having reduced it. The results for Germany are not consistent with the aggregate market response in Germany to the BSE crisis in the U.K., which saw beef consumption drop significantly throughout Europe. However, as already mentioned, Germany has one of the lowest levels of beef consumption in the EU, so it is not surprising to find the majority of German respondents, in a sample of this size, to be classified as light beef consumers and if beef consumption has historically been rare or at best occasional for such consumers then it is not surprising that they said their consumption had not changes in recent years. This is in

direct contrast to the Italian situation, where beef consumption is among the highest in the EU and where consumer concern over beef safety had already been heightened before the outbreak of BSE by the issue of beef hormones.

When asked for the main reasons for any change in household beef consumption, 60% of those German respondents who said their consumption had fallen mentioned safety issues, either in general (42%) or specifically BSE (18%). Safety was also the main reason (40%) given by the Italian respondents, for whom preferences for other meat was also a significant factor (32%). Interestingly, in neither of the samples did diet and health feature significantly, with 13% of the German respondents and 6% of the Italian respondents citing it as a reason for the decline in household consumption. Thus, on the face of it, it appears that food safety issues are the main factor driving the downward trend in beef consumption in both countries.

In order to gain some insights into the importance consumers attach to different attributes of fresh beef products, respondents were asked to state, unprompted, what they looked for when purchasing fresh beef from a supermarket. Quality assurance schemes primarily focus on credence attributes (e.g., production methods, farm of origin, country of origin, traceability, freshness). Thus, if consumers attach importance to credence attributes then a scheme designed to assure the presence of them should be of interest and value to consumers. However, if consumers attach greater (or even exclusive) importance to search and experience attributes (e.g., price, taste, type of cut, color, leanness) then the impact of quality assurance schemes may be greatly reduced. Table 3 lists the percentage of unprompted responses to this question, which suggest that credence attributes, such as country of origin and farm of origin, are more important in Germany than in Italy, where experience attributes dominate the type of cues shoppers use when considering purchasing fresh beef.

Thus, it appears that the perceived risks associated with fresh beef consumption are higher in Germany, where citation of credence attributes as purchase cues is higher. Therefore, one might expect QAS designed to guarantee these attributes to be of greater interest to fresh beef consumers in Germany (or more specifically to GROSSO-MAGNET shoppers) than to Italian consumers of fresh beef who shop in the Co-op, and who appear to be exclusively guided by extrinsic attributes, such as appearance and price. However, this ignores the extent

Table 3
Percentage of respondents citing different product attributes looked for when purchasing fresh beef (multiple response, unprompted)

Attribute	GROSSO-MAGNET	Co-op
Color	36	50
Leanness	29	38
Type of cut	5	38
Price	10	25
Sell-by-date/freshness	39	22
Country of origin	43	15
Production methods used	1	1
Farm of origin	11	–
Other	3	5

to which concerns about the intrinsic safety of food in general and beef in particular (i.e., product category risk), have already been alleviated by the various measures adopted and promoted by the individual supermarkets, including the respective quality assurance schemes for beef, which have been in existence for several years. Thus, the lack of reference to credence attributes in the Italian sample may reflect the success of the "Prodotti con Amore" scheme in Italy, relative to "Wörther Hof" in Germany, in reducing product specific risk, as perceived by the consumer.

The relatively low percentage of respondents citing price as an important factor is interesting, but is likely to be largely due to the fact the both stores studied sell 100% quality-assured beef under the respective labels. Thus, price comparisons between different beef products are not possible, although the price of beef relative to the price of other meats is likely to remain a factor of some importance to some consumers.

It is also interesting to note that these results suggest that the objectives of the respective schemes, from the perspective of the supermarkets, are well founded, with GROSSO-MAGNET shoppers clearly more concerned about safety and origin and the Co-op shoppers seemingly more concerned with product quality, as indicated by visual appearance (color, leanness, type of cut).

3.2.3.2. Awareness of quality assurance schemes. When asked if they were aware of any scheme in the supermarket that guarantees the safety and quality of fresh beef, 67% of the Italian respondents said they were, compared to just 27% of the German sample. However, only 13% of the Italian respondents who were aware of a quality assurance scheme for fresh beef could remember what it was called, compared with 78% of the German respondents. When prompted with the name of the scheme, the level of recognition was again much higher among the Italian sample, with 79% claiming they had heard of "Prodotti con Amore" compared with 46% of the German sample who had heard of "Wörther Hof." Moreover, when prompted with the name, 78% of the Italian respondents said they had purchased "Prodotti con Amore" beef and 43% of the German sample said they had purchased "Wörther Hof." These responses are consistent with the higher level of consumer 'participation' in the Co-op compared to GROSSO-MAGNET, the much greater importance of beef in Italy compared to Germany.

When asked why they had purchased quality assured fresh beef, 80% of the Italian respondents said it was explicitly due to the quality assurance guarantee, 57% said it was because they trusted the retailer and 29% said it was due to the taste, suggesting that the Italian scheme was working effectively in communicating the safety and quality objectives upon which it is based. In contrast, only 9% of the German sample made any reference to safety, with 40% citing quality issues (appearance, presentation, taste) and 23% citing convenience as the main reason. Clearly, the motives for selecting these quality assured products were markedly different between the two groups but the reasons cited by Italian purchasers were more consistent with the stated scheme objectives than those given by the GROSSO-MAGNET shoppers who had purchased "Wörther Hof."

Respondents were then asked when and where they first heard of the respective schemes. Just over half of the German respondents (mistakenly) believed the "Wörther Hof" scheme had been introduced within the past 3 years and only 16% of the German sample believed

the scheme had been in operation for more than 3 years. The Italian scheme was also regarded by the majority of respondents as a recent phenomenon—82% thought it had been introduced within the past 3 years. This suggests that both schemes are likely to be more strongly associated with food safety issues (a relatively recent phenomenon) than animal welfare and quality issues, for which they were originally introduced almost 10 years ago.

The supermarkets themselves appear to have been the key sources of information about the schemes, with 65% of German respondents and 71% of Italian respondents citing them as the original source of information about the respective schemes. TV and media advertising were recalled by just 26% of the German sample and 28% of the Italian sample. Significantly, awareness of the scheme was higher among 'loyal' Italian shoppers, with 60% of Co-op members recalling ''Prodotti con Amore'' compared to 40% of non-members. However, awareness of the ''Wörther Hof'' scheme was higher among those respondents without a GROSSO-MAGNET loyalty card (40%) than it was among those who owned a loyalty card. Thus, we would conclude that Co-op has been more successful in communicating its quality assurance initiatives to its members than GROSSO-MAGNET. This is not entirely surprising, given the higher consumer 'participation' in the Co-op and the much higher level of beef consumption. However, these results may also reflect the fact that the overall level of product category risk with respect to fresh beef purchases is higher in the German market than it is in Italy, which in turn would suggest that a quality assurance scheme should be of greater interest to the GROSSO-MAGNET food shopper than the Co-op food shopper, if effectively communicated.

3.2.3.3. Expectations of quality assurance schemes. Those respondents who indicated an awareness of the respective schemes were then asked what they thought the schemes were concerned with. The unprompted responses are presented in Table 4.

The largest difference in the perceived function of the respective schemes is the relative importance attached to safety issues. ''Prodotti con Amore'' is clearly regarded as a guarantee of both safety and quality, while ''Wörther Hof'' is seen primarily as a quality label, with much greater emphasis on animal welfare and denomination of origin than is the

Table 4
Perceived role of quality assurance schemes (respondents who were aware of the respective schemes)

Aspect	GROSSO-MAGNET		Co-op	
	Unprompted (%)	Mean importance rating[a]	Unprompted (%)	Mean importance rating[a]
Safety guarantee	19	1.6 (0.6)	49	1.0 (0.3)
Quality guarantee	59	1.4 (0.5)	58	1.0 (0.3)
Control of animal welfare	27	1.7 (0.7)	13	1.4 (0.7)
Control of hormone use	1	1.6 (0.7)	1	1.4 (0.7)
Control of animal feed	6	1.7 (0.8)	35	1.2 (0.6)
Control of hygiene	–	1.3 (.05)	18	1.1 (0.3)
Denomination of origin	49	1.3 (0.5)	23	1.3 (0.7)
Traceability	1	2.0 (0.8)	–	1.8 (1.1)

[a] 1: Very important, 4: not important at all (values in parenthesis indicate standard deviations).

case with the Italian scheme. It is also interesting to note that there is a clear correlation between the perceived function of the scheme and the specific attributes that fresh beef consumers look for within the German sample, where denomination of origin featured highly, but the link is much less evident within the Italian sample, for whom production methods were not regarded as important purchase cues but were associated with the scheme.

Once again, this suggests that product category and product specific risk is perceived to be lower by Co-op Italia shoppers, for whom relatively little effort (search time) is required at the point of sale to determine the safety characteristics of the product. In contrast, the German shoppers appear to be primarily concerned with denomination of origin and animal welfare, as quality cues, which they expect the "Wörther Hof" scheme to control. Thus, both schemes have the potential to reduce the search costs associated with credence attributes, but the precise nature of the attributes varies between the countries, and the Italian retailer appears to have made considerably more progress towards addressing their consumers' specific concerns over food safety.

Having sought unprompted perceptions of the role of the respective schemes, we then asked the same subgroup of respondents (those who had expressed an awareness of the schemes) to indicate how important they thought each of these specific functions were, using a four point categorical scale (1 = very important, 2 = quite important, 3 = not very important, 4 = not at all important). The mean scores are also presented in Table 4. The differences in the mean scores are statistically significant for all factors listed except denomination of origin, with the Italian sample tending to regard all the factors as more important than the German sample. However, it is also interesting to note that, having been alerted to the safety aspects of the scheme, the German respondents' still accorded almost equal importance to the safety issues as they did the quality issues. This suggests that the objectives of the "Wörther Hof" scheme have not been communicated as effectively in Germany as they have for "Prodotti con Amore," in Italy, where the importance ratings are consistent with the unprompted perceptions of what the schemes were concerned with. It also suggests that the scheme is working more effectively as a purchase cue for those who purchase their beef from Co-op Italia than it is for those who purchase beef from GROSSO-MAGNET.

Those respondents who had not expressed an awareness of the schemes were asked if they would be interested in any scheme that guaranteed the safety and quality of fresh beef and if so, what they would expect such a scheme to be concerned with.

Perhaps surprisingly, just over half of the Italian respondents said they would be 'very interested' in such a scheme and 33% said they would be 'quite interested,' leaving 15% uninterested in the concept. Even more surprising was the fact that only 16% of the German respondents were 'very interested' in such a scheme and 57% were 'quite interested,' leaving 28% with no interest in the concept. Once again, this probably reflects the relative unimportance of fresh beef in the German food basket and the fact that such a small percentage of the German sample said they had reduced their beef consumption in recent years explains, at least in part, the extent to which the "Wörther Hof" scheme is seen as a quality mark rather than a food safety stamp, even by those who were aware of it.

Table 5 shows the factors that were cited, unprompted, by those who had not heard of the schemes and the importance attached to the specific factors, which they were shown when spontaneous responses were no longer forthcoming.

Table 5
Perceived role of quality assurance schemes (respondents who were *not* aware of the respective schemes)

Aspect	GROSSO-MAGNET		Co-op	
	Unprompted (%)	Mean importance rating[a]	Unprompted (%)	Mean importance rating[a]
Safety guarantee	22	1.6 (0.6)	47	1.0 (0.2)
Quality guarantee	51	1.4 (0.5)	47	1.1 (0.4)
Control of animal welfare	13	1.7 (0.7)	13	1.6 (0.8)
Control of hormone use	–	1.5 (0.6)	13	1.7 (0.8)
Control of animal feed	2	1.6 (0.6)	13	1.6 (0.8)
Control of hygiene	1	1.3 (0.5)	7	1.4 (0.7)
Denomination of origin	57	1.4 (0.6)	33	1.5 (0.8)
Traceability	1	2.0 (0.7)	–	2.0 (1.0)

[a] 1: Very important; 4: not important at all (values in parenthesis indicate standard deviations).

Significantly, the difference in the importance attached to the different aspects of an assurance scheme by those who were unaware of the existing schemes were much less marked,[3] with the Italian sample of 'unaware' respondents generally attaching less importance, on average than those who were aware of "Prodotti con Amore." The responses from the German group of 'unaware' respondents were much more in-line with those who were aware of the "Wörther Hof" scheme, with quality issues featuring more strongly than safety issues.

Finally, all respondents were asked whom they would trust the most to guarantee the quality and safety of fresh meat. The supermarket was the preferred choice in both countries, but the support for the Co-op was significantly greater than for GROSSO-MAGNET. Almost two-thirds of the Italian sample cited the former, while 38% of the German sample cited the latter. The second choice for the Italians was the European Union (21% of respondents), which was cited by only 3% of the German sample, who were more willing to entrust butchers (26%) and farmers (17%).

4. Conclusions

Notwithstanding the differences in country food safety legislation and industry structure, the motivation behind retailers' introduction of quality assurance schemes for beef appears to have been remarkably similar to those in the U.K. GROSSO-MAGNET and Co-op Italia have responded to a perceived need for greater reassurance over the safety of fresh beef, with the German retailer also embracing growing demand for improved animal welfare. Moreover, these schemes have not been a 'knee-jerk' reaction to contemporary food scares, but part of a long-term strategy to gain competitive advantage by reducing the perceived risk associated with fresh beef, whether it is from an extrinsic quality or intrinsic (safety/welfare) perspective.

However, the results of this exploratory study support the findings from research on assurance schemes in other sectors (Fearne & Garcia, 1998) which conclude that considerable scope remains for improving the communication of the objectives of such

schemes, which have been poorly understood by substantial segments of the stakeholders within the agri-food supply chain, not least consumers.

The considerable promotional support for ''Prodotti con Amore'' by Co-op Italia appears to have paid dividends, with consumers generally well informed about the product, which has achieved high levels of penetration among loyal Co-op shoppers. In contrast, the food safety platform upon which the ''Wörther Hof'' scheme was based has not been well communicated in Germany, where animal welfare and denomination of origin appear to be more important issues than broad safety assurances. However, such differences are not altogether surprising given the significantly different levels of beef consumption in the two countries—you would expect consumers to be more aware of and interested in schemes which assure the safety and quality of high consumption products (Italian beef) than low consumption products (German beef).

From a theoretical perspective, there is evidence from this study to suggest that quality assurance schemes have the potential to reduce both perceived product category risk and product specific risk. The former should be the concern of all stakeholders in the industry, including public sector organizations and government, as higher levels of perceived category risk will act as a severe brake on any initiatives to halt the long-term decline in fresh beef consumption. The latter is important for individual firms and supply chains, as it offers a means of creating product differentiation in a commodity sector.

The results of this study are consistent with similar studies, the most directly comparable of which is reported in recently published papers by Becker (2000), Glitsch (2000) and Henson and Northern (2000). In their pan-European study of consumer attitudes towards meat quality and meat safety, they found that extrinsic cues, such as freshness, color, leanness, origin, to be broadly regarded as the most important indicators of beef quality, with price some way down the list of important cues. They also found specific differences in the two countries studied here, with origin more important in Germany and color more important in Italy, as an indicator of beef quality. Their study also confirmed differential concerns with respect to different indicators of beef safety, with quality labels and knowledge of the production process much more important in Italy than in Germany, where country of origin was found to be the most important factor. However, their study, like all the others in the broad area of consumer assessment of quality and/or safety, suffers from an aggregation and/or generalization problem. Not only do consumers differ significantly between countries, they also differ significantly within countries, a fact also supported by the study reported by Becker, Glitsch, Henson and Northern, which found that store type was an important indicator of product quality—people purchasing from butchers expect a different (typically higher) quality meat than those who purchase from supermarkets, and different supermarkets have different levels of perceived quality. Thus, the significant contribution that our study makes to the understanding of meat purchasing behavior is the need for much greater precision in the unit of analysis—beef consumers/purchasers. We cannot determine the extent to which the significant differences in consumer attitudes reported here are due to differences between Italian and German beef consumers in general, but our contention would be that they are at least in part (and quite possibly a large part) due to the distinct differences between the type of consumers who purchase beef from the two specific supermarkets selected. However, we are unable to answer how different our

findings may have been had we selected different retailers operating different assurance schemes.

From a policy perspective, the results of this study demonstrate the need for a much stronger and co-ordinated link between public initiatives to reduce food risks, both actual and perceived, and private initiatives to create brand awareness, protect brand loyalty and gain competitive advantage. Both supermarkets have developed a strong consumer franchise; an objective sought by all of the major food retailers throughout the world, based on value for money and product integrity. Such efforts should be supported and exploited by public institutions not shunned and branded as marketing gimmicks, by politicians who refuse to accept that consumers trust supermarkets much more than they do politicians!

From a practical perspective, the key lesson that firms and supply chains seeking to develop assurance schemes can learn from this study is the need for a strong communication strategy to support the core objectives of such a scheme and the scope for such schemes (and the communication thereof) to contribute to the process of building shopper loyalty (for supermarkets) and consumer loyalty (for product manufacturers). For as long as product category risk exists to a significant degree, opportunities will remain for organizations in the private sector to gain competitive advantage through strategic initiatives aimed at reducing product specific risk and securing increased brand loyalty. "Prodotti con Amore" is one such initiative from which other retailers and members of their associated supply chains can learn.

Clearly, the results presented here are exploratory and further research is required, particularly with respect to the way in which quality assurance schemes have evolved in other countries and the key features that distinguish the successful ones from those which have struggled to become established. The key research question here would appear to be to what extent failure to successfully implement quality assurance schemes in the food chain is due to fundamental differences in perceived risks, both at the category and product level, purchase cues and related attributes (credence, experience and search) and/or the communication strategies adopted by the key institutions involved.

Notes

1. Category Manager and Marketing Manager, GROSSO-MAGNET, Wiesbaden, 1999.
2. Interview with senior personnel, 1999.
3. The mean scores were subjected to an *F*-test. Differences were significant at the 5% level for only three factors: quality guarantee, animal welfare and use of hormones.

Acknowledgments

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