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# Beef meat preferences of consumers from Northwest Italy: Analysis of choice attributes

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## ARTICLE INFO

## Keywords:

Choice factors  
Consumer  
Beef meat  
Best worst analysis  
Price  
Animal welfare

## ABSTRACT

In this research the importance of several choice attributes of beef for Piedmontese consumers was examined. The survey was conducted on a sample of consumers in sixteen meat stores in Piedmont, Northwest Italy. A choice experiment (Best-Worst scaling methodology) was used to identify consumer preferences and five clusters of purchaser. The responses were also analyzed on the basis of two variables, the frequency of meat consumption and the place of purchase. Piedmontese consumers considered “price” as the most important factor in meat purchasing, but “animal welfare” considerations played some part too.

## 1. Introduction

The analysis of the consumer perception of meat attributes is important to understand and predict its behavior (Grunert, Bredahl, & Brunso, 2004). Meat experience-consumption characteristics and quality attributes determine purchasing decisions (Becker, 2000; Curtis, Cowee, Lewis, & Harris, 2006). Moreover, consumer attitudes are influenced by the values and social rules which are determined by multiple aspects of everyday life for individuals or groups of people (Boogaard, Oosting, & Bock, 2006; Knight & Barnett, 2008; Toma, Stott, Revoredo-Giha, & Kupiec-Teahan, 2012).

In a study conducted by Loureiro and Umberger (2007) experiments were carried out to analyze the consumer willingness to pay (WTP) a premium for a product guaranteed for meat attributes such as labels, traceability, origin, tenderness and certifications. The results underline how consumers would prefer to pay a premium, in the first place for a safe and certified meat, then for a traceable meat, a guaranteed origin meat and, finally, for a tender meat. The organoleptic quality of the product, therefore, assumes less importance compared to the guarantees of safety of the product. Bonny et al. (2016, 2017) reported that tenderness, flavor liking and overall liking had similar weights when consumers score eating quality. However, much of the literature indicates that tenderness is the most important factor in determining consumer satisfaction (Alfnes, Rickertsen, & Ueland, 2008; Huffman et al., 1996; Verbeke, Pérez-Cueto, de Barcellos, Krystallis, & Grunert, 2010). This is confirmed especially when it is submitted in a set of quality attributes ascertained on the basis of the actual experience-consumption of the product (tenderness, juiciness, flavor desirability

and overall palatability (Aalhus, Jeremiah, Dugan, Larsen, & Gibson, 2004; Bernues, Olaizola, & Corcoran, 2003; Curtis et al., 2006; Morgan et al., 1991). It is also demonstrated that a classification scheme for tenderness as well as meat quality would be appreciated by European consumers (Verbeke, Pérez-Cueto, et al., 2010). If the set of quality attributes submitted to consumer includes those relating to organoleptic characteristics and credence quality attributes of meat - those that cannot be ascertained even after the normal use of the product (e.g. animal feeding guarantee, environmentally friendly production, respect for the animal welfare, etc.) (Becker, 2000), consumer considers safety as the most important attribute for beef meat choice (Cicia & Colantuoni, 2010).

Also meat color was studied in different works as a choice attribute: the red color of beef positively influenced consumer likelihood to purchase (Carpenter, Cornforth, & Whittier, 2001). However, the use of color as a cue in the quality perception process not always added to the accuracy of the prediction of quality beef aspects (Grunert et al., 2004; Grunert, Brunso, Bredahl, & Bech, 2001).

In an American research of Curtis et al. (2006), from the analysis of 18 beef meat qualities analysis, a classification in function of attributes importance was made: “extremely important” (freshness, taste/flavor, safety guaranteed meat, tenderness, leanness and price), “very important” (cut type, humane treatment, environmentally friendly, marbling, naturally raised, feed type, packaging, organic label, muscle texture, sale/promotion) and “important” (origin and brand). This latter trend is opposite to the European consumers' opinion for whom the indication of meat origin- mandatory in the EU- takes on significant importance and is associated to product safety (Ehmke, 2006; Schupp &

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Gillespie, 2001), and to traceability guarantee (Ehmke, 2006; Giraud & Halawany, 2006; Verbeke & Ward, 2006). In particular, consumers have a positive willingness-to-pay for their own country of origin meat products (Ehmke, 2006; Umberger, Feuz, Calkins, & Killinger-Mann, 2002; Loureiro & Umberger, 2004).

In addition, European quality certifications as the Protected Designation of Origin (PDO) and the Protected Geographical Indication (PGI) are meat choice attributes that relate to the quality and safety of products, especially for Italian consumers (Aprile, Caputo, & Nayga Jr., 2012).

The voluntary certification of meat can concern the good farming practices related to animal welfare (Faucitano, Martelli, Nannoni, & Widowski, 2017; Purslow, 2017). Consumer attention towards animal welfare was confirmed by several studies conducted at European level (Boogaard et al., 2006; Toma et al., 2012; Troy & Kerry, 2010; Vanhonacker, Verbeke, Poucke, & Tuytens, 2008). The concept is, moreover, being closely linked to increased meat quality and influenced the WTP of consumers for certified animal friendly products (Napolitano, Girolami, & Braghieri, 2010; Toma et al., 2012): so it becomes important for both the agents operating in the meat supply-chain and the consumer the use of trademarks or labels, for example, certifying a farming system respectful of the animal's well-being (Gracia, Loureiro, & Nayga, 2009; Harper & Henson, 1999; McEachern, Schroder, Willock, Whitelock, & Mason, 2007; Napolitano et al., 2010). In this regard, they are recognized as an added value of voluntary labeling product certifications that guarantee the provision of additional information on the product to the consumer that facilitate meat traceability (Angulo & Gil, 2007; Loureiro & Umberger, 2007; Villalobos, Padilla, Ponce, & Rojas, 2010).

In our study, in order to understand which meat attributes influence the Nord-West Italy consumer behavior, preferences and beef meat consumption have been analyzed employing Best Worst Scaling.

This methodology, below BW, was introduced by Finn and Louviere (1992) in the early 1990s of the last century and, given the growing use in the scientific context, Marley and Louviere (2005) summarized earlier theoretical work and developed an integrative theoretical approach of the methodology. A choice experiment was conducted in this research to analyze the importance of 12 attributes of beef and understand if the place of purchase and the meat consumption frequency affect preference structure and the meat-buying habits in Piedmont. The Best Worst analysis was also used to understand if within the sample could be identified clusters with homogeneous preferences. Currently no known published research compares consumers beef meat purchase habit, behavior and preferences relating to the considered meat attributes in function of meat consumption frequency and point of purchase.

## 2. Materials and methods

### 2.1. Data collection

To investigate on Piedmontese consumers purchasing behavior, attitudes and preference about beef an ad hoc questionnaire was developed. A total of 401 individuals participated in the study, which was conducted at sixteen points of sale of meat (8 familiar points of sales of fresh cutting meat (trusted butchers, TB), 6 meat points of sale of two mass retail channels where packaged, fresh and processed meat were sold (MS) and 2 farm butchers (B).

Face-to-face interviews were made using paper questionnaires (see Appendix A) from April to July 2015, from Monday to Sunday, in two time slots (9 a.m. to 1 p.m. and 4 p.m. to 8 p.m.). The questionnaire was subdivided in three main sections. The first section included questions related to socio-demographical characteristics: age (under 30, from 31 to 45, from 46 to 55 and over 55), gender (female or male), educational status (primary school, lower secondary school, upper secondary school, bachelor or master's degree - first stage of tertiary education - 3 or 5 years degree) and employment (employed, retired, entrepreneur,

**Table 1**  
Meat attributes used for the Best Worst analysis.

Meat qualitative attributes		
Price	Brand	Animal welfare
Country of origin	Color	Taste/flavor
Traceability	Nutritional information	Tenderness
Animal breed	Organic label	Quality certifications

student, unemployed and housewife). The second section of the questionnaire was on meat purchasing behavior and consumption. Quantitative and qualitative consumption of meat, and in particular of beef meat, were examined, asking about the weekly consumption of meat and beef, the habitual meat point of sale, which cut types of beef were usually consumed and the beef trend consumption in the last five years. The preferences of Piedmontese consumers were analyzed in the third section which focused on the meat attributes chosen for the Best Worst scaling.

### 2.2. Meat attributes

The choice of 12 meat attributes (Table 1) was made after an in-depth review of articles published in international journals.

The attributes chosen were:

#### 2.2.1. Price

Price is a key element in purchasing decisions. In general, it is used as an indicator of quality when not enough information is available to evaluate the product and in situations of risk. Generally the purchase of cheaper products reduces the financial risk, while a particularly high price represents a protection from poor quality product (Aalhus et al., 2004; Girgenti, Massaglia, Mosso, Peano, & Brun, 2016; Imami, Chan-Halbrendtb, Zhangc, & Zhllimad, 2011; Panza, 2013; Simon, Simon, Zatta, & Fassnacht, 2013; Villalobos et al., 2010).

#### 2.2.2. Country of origin

Evidence from numerous marketing studies indicate that the assessments made by consumers are significantly influenced by the origin of the products. For the consumer the information on geographical origin can serve both to identify the product and to assess its quality (Curtis et al., 2006; Pecin, 2014; Loureiro & Umberger, 2007; Erdem, Rigby, & Wossink, 2010; Villalobos et al., 2010; Al-Sulaiti & Baker, 1998).

#### 2.2.3. Traceability

The traceability increases the certainty and safety of the product, even in case of risk for the consumer (Loureiro et al., 2007; Troy & Kerry, 2010; Erdem et al., 2010; Villalobos et al., 2010).

#### 2.2.4. Animal breed

Animal breed is usually associated to the animal origin. The breed is an important factor in obtaining a quality meat product and the meat industry uses this attribute as a grading indicator of quality (Bernues et al., 2003; Troy & Kerry, 2010).

#### 2.2.5. Brand

The brand is an indicator of quality, because it allows the consumer to identify the product and to link it with past experiences or information about the manufacturer (or seller) (Villalobos et al., 2010).

#### 2.2.6. Color

Color is one of the attributes that most influence the choice at the time of purchase. Indeed, large retail outlets and traditional retailers in local markets perform rigorous selections based on visual criteria before putting the product on sale or use commercial lights to promote

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