

### 1. Introduction

Today, the European agribusiness is characterised by saturated markets and increasingly homogeneous products (HERRMANN ET AL., 2002; SPANNAGEL AND TROMMSDORFF, 1999; HENNEKING, 1998). In such highly competitive markets, the quality of food products is among others one key factor for success (DU AND SUN, 2005; LAWLESS, 1995; STEENKAMP, 1989). Food quality has a remarkable influence on a firm's profitability because of its customer satisfaction and customer value. For example, food manufacturers can employ food quality to establish a preference for their products, by differentiating them in a way meaningful to consumers (KROEBER-RIEL AND WEINBERG, 2003; CRAWFORD, 1997; OUDE OPHUIS AND VAN TRIJP, 1995). Any effort to differentiate products and promote food quality can only be successful if new or advanced attributes can be communicated to consumers (MEYER, 2003; VON ALVENSLEBEN AND SCHEPER, 1997). The winning companies are those that can meet consumers' needs economically and with effective communication (KOTLER AND ARMSTRONG, 1994). To be able to fulfil consumers' expectations and to market products effectively it is therefore important for the industry to know which quality characteristics<sup>1</sup> are relevant and accessible to consumers and to analyse which parameters influence their purchase decisions (BRYHNI ET AL., 2002; GLITSCH, 2000). To survive in the market and moreover to be successful, agribusiness companies have to become more consumer-oriented concerning food quality (HANF AND KÜHL, 2005; VERBEKE ET AL., 1999; KOHLI AND JAWORSKI, 1990).

In this context, it must be stated that food quality is not a single, recognizable characteristic. It is rather a multidimensional, diffuse concept depending on who provides the definition. In fact there is an "abundance of ways" in which the term has been defined (GRUNERT, 2005; LAWLESS, 1995; GARVIN, 1984A).<sup>2</sup> But although there have been many attempts to clarify and define the concept, there is still no general agreement on the term 'food quality' (BRUNSØ ET AL., 2004; GRUNERT ET AL., 1996). From a food scientist's perspective, e.g. a nutritionist or food technologist, food quality can be considered as a well-defined concept, because the scientist can revert to a multitude of standardized, instrumental tests

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<sup>1</sup> In this thesis the term 'quality characteristics' is used to refer to 'quality cues' and 'quality attributes' simultaneously.

<sup>2</sup> For example the special issue of *Food Quality and Preference* (1995) provides a broad range of proposals on the definition of food quality.

to quantify food quality. At the same time, food quality can be considered as the least well-defined concept in the food industry, because food scientists represent only a small percentage of those people concerned with food quality (CARDELLO, 1995). Consumers decide what is ‘good’ and what is ‘poor’ (LAWLESS, 1995). Although the consumer’s definition of food quality drives the food industry’s economy, “it is precisely the consumer’s definition of food quality about which we know the least and which we are most challenged to quantify” (CARDELLO, 1995). Consequently, the view of the consumer has to be considered.

### **1.1. Problem Statement and Motivation**

The problem is that, in reality, quality refers to aspects of food products and the basic production process that can be measured and documented in an objective way. But, the quality consumers associate with a food product is often not equivalent to this objective quality evaluation. Consumers do not buy objective attributes but subjective product benefit (SCHOLDERER AND BREDAHL, 2004; ESCH, 2000). Hence, it is essential to distinguish between the objective attributes per se and consumers’ subjective perceptions of these attributes. The perception is a result of consumers’ selection, organisation and interpretation of product information. It can be understood as the impression made by the product (GRYNA, 1998). It is the perception that affects behaviour, not the characteristic itself. It is the consumer who ultimately decides what kind of food product to buy (STEENKAMP, 1990).

The key to success is to uncover the subjective quality perception of consumers. It is to analyse which quality characteristics are important for them to perceive quality and how impressions of quality are actually formed based on objective characteristics (ZEITHAML, 1988). Research has to be based on the consumers’ individual quality perceptions, because consumers differ in their individual perceptions of the same product (GRUNERT ET AL., 1996). Consumers’ quality perceptions are influenced by information stored in memory. The stored information is organised in cognitive structures based on former experiences. Cognitive structures are basically a key factor in developing a useful understanding of consumers’ purchase behaviour. They are known as the most important aspects in making assumptions about the quality perception and purchase decision (OLSON AND REYNOLDS, 1983). The cognitive structures include simplifying programmes for information processing, namely irradiation, the halo effect and key information. Irradiation denotes that the consumer uses one impression to infer another impression, i.e. infers one attribute by another

(e.g. evaluating freshness by means of colour). The halo effect describes the evaluation of single characteristics influenced by an overall impression of the product (e.g. organic products have a better taste, are healthier etc.). Key information claims that a single key product characteristic (e.g. brand) is used to evaluate the overall product quality. In this case it is relatively easy for consumers to perceive and evaluate a products' quality (KROEBER-RIEL AND WEINBERG, 2003).

The key information *brand* is usually used for processed, highly standardized food products (BECH-LARSEN AND BREDAHL, 2003). Manufacturers employ this key information in order to enable consumers to recognize the product. The brand enables consumers to recall their previous experience with the product for quality evaluation (GRUNERT, 2002; CRAWFORD, 1997). Unprocessed foods such as fresh fruits, vegetables and meat are seldom branded (BECH-LARSEN AND BREDAHL, 2003). Unbranded products make it hard for consumers to evaluate the product and to form quality expectations. Consumers have to use other quality characteristics to evaluate the quality. Research within this field is important because empirical studies demonstrate for example that consumers have difficulties in evaluating meat quality (GRUNERT ET AL., 2004; BREDAHL ET AL., 1998; GRUNERT, 1997). It is important to know what characteristics are used for quality perception and in turn what evaluation is related to the single quality characteristic. With regard to fresh meat the characteristics colour or counter are of major importance to perceive and evaluate the quality (LÜTH AND SPILLER, 2006; ALFNES, 2004). Consumers might perceive the colour to evaluate the freshness of a product. Furthermore, colour is used to infer taste. This already shows that several complex relations are present within the cognitive structures concerning food quality (BRUHN AND GREBITUS, in press). By far the most consumed meat in Europe is pork, covering almost half of total meat consumption (NGAPO ET AL., 2007A). In Germany, pork is the most purchased and consumed meat as well (BURCHARDI ET AL., 2007; HANSEN ET AL., 2006; ZMP, 2006A).

Against this background, this thesis emphasises consumers' perceptions of pork quality. Even if meat consumption as well as consumer behaviour towards meat have been research subjects for many years, not much research has been done on consumers' perceptions of pork quality and how certain quality characteristics are actually used to make pork purchase decisions. However, reasons for the constantly high interest lay particularly in changes at consumer level and in image problems as well as continuous scandals that have affected

and continue to affect the meat sector on a regular basis (e.g. VERBEKE AND VIAENE, 1999). Several studies have focused on how consumers generally perceive pork quality (E.G. NGAPO ET AL., 2004; NGAPO ET AL., 2003; BRYHNI ET AL., 2002; GLITSCH, 2000; DRANSFIELD ET AL., 1998). But the concrete relations between the quality characteristics, what is stored in the consumers' memory and how the quality perception at the point of sale is influenced by these memories has not been established. Only few studies have analysed the impact of cognitive structures on quality perception (e.g. GRUNERT AND VALLI, 2001; NIELSEN ET AL., 1998; GRUNERT, 1995).

### 1.2. Statement of Objectives

The main target of this thesis is to explain food quality from the perspective of consumers in general and to empirically analyse perceived pork quality in particular. This target can be divided into four sub-targets with regard to theoretical, methodological, empirical and practical purposes.

The **first target** refers to theory: the aim being to connect consumer behaviour research to the economics of information approach to analyse consumer-oriented food quality and consumers' quality perception processes.

The **second target** concerns methodology: the intention being to find a way to elicit the consumers' stored information and to measure the consumers' use of current information at the point of sale to make the pork purchase decision. In this context, associative elicitation techniques as well as the new involvement profile are tested on their reliability in agricultural economics. A method for eliciting cognitive structures, i.e. concept mapping, is applied in a consumer survey in agricultural economics for the first time. The analyses of the data depict the information process in detail; social network analysis and count data analysis among others are applied. Furthermore, the new involvement profile, an instrument for measuring consumers' depth of information processing, is tested with regard to unprocessed products, i.e. pork.

The **third target** is empirical: the aspiration being to analyse which quality characteristics are used by consumers to perceive pork quality. The importance of quality characteristics regarding consumers' decision-making when purchasing pork is investigated. An analysis of the interactions between stored information and current information at the point of sale when buying pork is

carried out. Furthermore, influencing socio-demographics and attitudes<sup>3</sup> towards the quality characteristics are determined.

The **fourth target** regards practical advice: the use of quality as a marketing instrument for consumers' perceptions of quality must be investigated, the desire being to measure the importance of single quality characteristics regarding pork quality and to uncover relations between quality characteristics meaningful for marketing strategies. The aim being to give recommendations to create marketing strategies for unprocessed food, to develop communication strategies especially for experience and credence quality attributes and to segment consumers into meaningful target groups regarding the communication of pork quality.

### 1.3. Organisation of the Thesis

Against this background, the structure of this thesis is as follows. After this introduction, Chapter 2 discusses the theoretical background of food quality. Consumer-oriented definitions of food quality are presented. Appropriate approaches to investigate food quality by connecting consumer behaviour research and economic theory of quality are introduced. The perceived quality approach and the economics of information approach are explained with regard to food quality. Models of the quality perception process are described to demonstrate the way consumers perceive the quality of a product. The basics of information processing are used to investigate the perception process, i.e. interactions between stored and current information. The constructs of cognitive structures and semantic networks help to understand these processes. The construct of involvement is taken into account to make assumptions about the depth of information processing. The spreading activation network model is applied to draw conclusions about the activation of stored information at the point of sale to be used for purchase decision-making.

Chapter 3 gives an overview of previous studies concerning meat quality perception. It is shown what kind of quality characteristics are used by consumers to perceive quality and infer attributes not visible before purchase

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<sup>3</sup> Attitudes are the personal evaluation of a psychological object. They are determined by beliefs about the likelihood of consequences of the behaviour and evaluations of how good or bad those consequences would be if they occurred (Trafimow and Finlay, 2002; Ajzen, 1991). Attitudes influence psychological processes such as perception, learning and thinking. Strong attitudes can affect the purchase behaviour and quality judgment of consumers (Trommsdorff, 2003).

(e.g. taste). Furthermore, systems for categorisation and systematisation of quality characteristics are introduced to offer frameworks for classifying the characteristics according to their potential to be perceived and evaluated by consumers.

The 4<sup>th</sup> chapter explains the methods used to investigate the perception process. Associative elicitation techniques are applied to elicit the cognitive structures regarding pork quality. An involvement measurement instrument is used to research what quality characteristics are used at the point of sale to make the pork purchase decision. Furthermore, statistical and econometric methods such as network analysis and an ordered logit model for data analysis are explained.

In the 5<sup>th</sup> chapter, empiricism is provided. In this thesis, two consecutive consumer surveys are presented. The first survey was conducted in 2004 at private household level (n=260) to investigate the stored information, i.e. cognitive structures consumers hold against pork quality by applying free elicitation technique and concept mapping. This enables assumptions about the way consumers perceive pork quality. The cognitive structures and semantic networks of pork quality respectively were researched by means of network analysis and count data analysis. The impact of stored information on pork consumption frequency was investigated using an ordered logit model. The second survey was carried out in 2005 at the point of sale (n=767) to analyse what information, i.e. quality characteristics are actually used to make the pork purchase decision. In this context, it was assumed that the stored information influences the kind of current information used at the point of sale. The new involvement profile is applied to measure the depth of information processing. Furthermore, binomial logit and ordered logit models are applied to investigate determinants of importance and utilisation of current information to make the pork purchase. Consumers are segmented into target groups according to their use of current information at the point of sale.

The 6<sup>th</sup> chapter summarises the main results, gives marketing recommendations, criticizes research limitations and offers suggestions for future research.

### **2. Theoretical Background of Food Quality from the Consumer's Perspective**

This chapter discusses the theoretical background of food quality from a consumer's perspective. The theory of consumer-oriented food quality is presented in Section 2.1. Afterwards, consumers' information processing as the underlying theory of the perception process is explained in Section 2.2. Section 2.3 sums up the most important findings.

#### **2.1. Concept of Consumer-Oriented Food Quality**

In the following, consumer-oriented definitions of food quality are given and the perceived quality approach as well as the economics of information approach are introduced to classify the concept of food quality (see Section 2.1.1). Furthermore, theoretical models of the quality perception process are discussed (see Section 2.1.2).

##### **2.1.1. Definition and Classification of Consumer-Oriented Food Quality**

Various studies differentiate between objective and subjective food quality (GRUNERT, 2005; BRUNSØ ET AL., 2004; GRUNERT ET AL., 1996; GRUNERT, 1995). 'Objective quality' is product- and process-oriented quality (e.g. fat content, use of pesticides) and 'quality control' (the standards a product has to meet) since it can be measured at the product itself. 'Subjective quality' is consumer-oriented quality because it is based on measures of individual perception only. It is not what producers or other third persons think (BOOTH, 1994). Consumer-oriented definitions of food quality are those where the individual consumer is the starting point. Table 1 presents several definitions of food quality, taking the subjective, consumer-oriented view into account.