

A framework to measure customers' perceptions on the quality of red meat

H.E. MALINDI

21437246

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Study leader: Prof. C.A. Bisschoff

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PREFACE

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ABSTRACT

This preliminary study investigated the factors which influence consumer choice of beef. A questionnaire and sensory evaluation considered the level of importance which consumers attached to the sensory (intrinsic attributes) properties of beef as compared to extrinsic factors. It was found that consumers use sensory properties to predict the freshness and overall eating quality, but they can also misinterpret the quality cues.

Consumers made it clear that the freshness and the place of purchase played a prominent role in their decision to purchase red meat because they perceive the retailer to be an integral part of the overall quality assessment with regard to the purchase process of mutton and beef.

The Total Food Quality Model is used as the frame of reference for analysing the way in which consumers perceive meat quality. The way in which consumers form expectations about the quality at the point of purchase, based on their own experience and information cues available in the shopping environment, is described as well as the way in which quality is experienced in the home during and after meal preparation. The relationship between quality expectations and quality experience and its implications for consumer satisfaction and repeat purchase intent is addressed.

The study collected data by means of a questionnaire to evaluate the quality perceptions of beef. Cronbach alpha as reliability coefficient recorded high levels of reliability and the factor analysis revealed that only one factor, namely that of quality considerations is present in the analysis. Furthermore, the building on the insights obtained on subjective quality perception, possibilities for consumer-oriented product development in the meat sector are addressed. Issues dealt with here are branding, differentiation by taste, healthiness and convenience.

Key terms: Red meat, buying behaviour, consumer preferences of red meat, beef, mutton.

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CHAPTER 1

ORIENTATION AND PROBLEM STATEMENT

1.1 INTRODUCTION

The choice of meat is not only a personal choice, but also a complex process that is influenced by a wide range of interrelating factors. The physical and chemical properties of a food are largely perceived by consumers in terms of its sensory attributes, such as appearance, aroma, flavour and texture (McIlveen & Buchanan, 2001:286). However, as Shepherd and Raats (1996:34) state, "*It is the person's liking for [each] attribute ... which will be the determining factor*".

Clearly, sensory attributes may also vary with the type of product or with nutrient content, for example, where a health-conscious consumer may only purchase lean beef, which will in turn determine the cut they buy as well as the price they pay. The level of consumer satisfaction depends greatly on their expectations and on the extent to which the product meets these expectations.

In addition, a consumer will often reflect on the past experience with a particular retailer or cut of beef, which may prevent a consumer from making a similar purchase in the future. Sometimes, consumers trade off sensory properties for other perceived benefits such as nutritional value or price. However, a repeat purchase is unlikely if the sensory properties do not at least meet the health (and other) expectations of the consumer. Sañudo *et al.* (2000:339) report that too much visible fat discourages the consumer to buy the specific cut of meat, and that excessive fat is often removed before cooking or during the meal. Especially the younger generation meat consumer is more health conscious in this regard, and is informed about the fact that the amount of fat in the diet and the saturated fatty acids are considered major risk factors for coronary heart diseases (Sañudo *et al.*, 2000:339). However, various other influences such as cultural acceptability, family income, symbolic status, food security and society are recognised

as contributing factors that influence the choice of foodstuffs (Shepherd & Sparks, 1994:203).

As consumers are increasingly more focused on the quality and nutritional characteristics of meat and meat products, fresh meat has been referred to as the food in which consumer confidence has decreased the most during the nineties (Verbeke, 1999:8). Verbeke continues to argue that this negative trend could be attributed to the fact that consumer organisations, industry, producers and government have been in debate on the issues of fat and cholesterol, growth hormones and price, to name but a few. Although the red meat industry is still one of the most important agricultural sub-sectors in South Africa, it has come under increased pressure following deregulation. This is mainly due to the decline per capita demand for the red meat, increased competition from overseas producers, and changes in customers' preferences. The dwindling per capita demand for red meat can be attributed to the decline in the per capita disposable income of South Africans. This, coupled with consumers becoming more health conscious, has meant the substitution of poultry for red meat.

South African consumers frequently eat meat as part of their daily diet. The consumers' behaviour is increasingly driven by product quality and health consciousness, with a newly emerging consumption pattern focused on "*healthy eating*".

The South African classification system assists the consumer in two ways when buying red meat. Firstly, in the clear identification of the different cuts available. Most supportive literature provides information regarding the characteristics of these cuts while recipes and cookbooks also refer to these standard cuts of beef or mutton.

Figure 1.1 graphically shows the standard beef cuts. Secondly, carcasses are also classified according to the condition of the slaughtered animal. See Figure 1.1 for an explanation of the carcass classification.

FIGURE 1.1: SOUTH AFRICAN BEEF CUTS



Sourced from: SAMIC (2010)

As a result, the untrained consumer is assisted in the selection of meat cuts and meat grades. It also assists the meat traders to describe their specific requirements in simple terms when purchasing carcasses and to utilise a variety of cuts with specific fatness levels in the market with the goal of optimum consumer satisfaction. It furthermore helps to contribute to a price structure for selling meat.

1.2 PROBLEM STATEMENT

There is a long tradition of research into consumers' food choice and quality perception. In the last few years, however, these topics have received even more attention due to the intense debate about such issues as ethical considerations in relation to food

production and quality, food scandals and the resulting food scares among consumers, genetic modification of foods, and animal welfare (or rather, non welfare), which has made questions regarding food quality and consumers' supposedly rational or irrational food choices even more urgent.

Increased interest in health and quality stands in stark contrast to a perceived unwillingness to pay the higher prices this implies, and scepticism about industry food production stands in contrast to busy lifestyles and resulting demand for convenience. However, while the topics of food quality perception and choice have certainly become complex, research has also provided new insights into them.

The aim of this study is to analyse the perceived quality, specifically the influence of perceived quality of intrinsic attributes (e.g. colour, flavour, smell, appearance) and extrinsic attributes (e.g. brand, denomination of origin, and image of traditional product) on consumer satisfaction, loyalty and purchasing intention which will serve as input on quality perception from a consumer point of view. The results in this paper will give insights into how consumers perceive the quality of red meat. The various elements of the Total Food Quality Model is discussed in more detail, based on four quality dimensions – health, taste, processing characteristics, and convenience. From this discussion on the model, the research questions are formulated and restructured into questionnaire format. This questionnaire is used to gather the primary data.

1.3 OBJECTIVES OF THE STUDY

1.3.1 Primary objective

The primary objective of this research is to analyse the customer's perception on quality and nutritional characteristics of red meat and meat products.

1.3.2 Secondary objective

The primary objective was achieved by realising the following secondary objectives, namely to:

- Undertaken a literature study to identify the criteria important in the buying of red meat;
- Measure the role these criteria play in the buying behaviour of red meat; and
- Determine an order of importance of the identified criteria in buying behaviour.

1.4 SCOPE AND DEMARCATION OF THE STUDY

The empirical study focuses on measuring buying behaviour of red meat within the employees of FERROMETALS to determine the customer's perception towards red meat. The base of the empirical study was the employees of the company FERROMETALS. The target population was the management category and bargaining category of FERROMETALS and ARCELORMITTAL SA.

1.5 RESEARCH METHODOLOGY

Both primary and secondary sources of information were consulted during the study. Secondary sources were primarily used to study the preferences of consumers towards red meat. The sources included publications and articles commonly found in South Africa that were published up to 2010.

Secondly, an empirical study was undertaken to gather primary information. This study employed a questionnaire which was distributed to the nominated companies. The data obtained from the questionnaires were analysed to present objective scientifically based opinions about consumer preferences and buying behaviour of beef consumers by the employees of the two companies.

The statistical analysis made use of computer software. The capturing of the data and the inferential statistics were done on an Excel Spreadsheet, but the more advanced statistics such as reliability (Cronbach Alpha) and the factor analysis (including the tests by Bartlett and Kaizer, Meyer and Olkin) were performed on the specialised statistical software, SPSS version 17 (SPSS, 2010).

1.6 DIVISION OF CHAPTERS

This mini-dissertation is divided into four chapters, each with a different focus area. A summary of the contents in these chapters follows.

Chapter 1

This chapter forms the introduction to the dissertation. The problem statement and background, that form the basis for conducting this study, are discussed. This is followed by a brief overview of the beef market in South Africa and consumer behaviour towards beef consumption. The chapter concludes with the research methodology, target population and summary of the chapter.

Chapter 2

Chapter 2 consists of a literature study on red meat marketing in South Africa and consumer perceptions on the quality of beef. It focuses on the impact of factors affecting the purchase of beef and consumption thereof, factors affecting food decisions made by individual consumers.

Chapter 3

In this chapter, the methodology employed during the empirical study is explained. The design of the questionnaire, the sample design, analysis and evaluation of data form part of this chapter. The results from the survey questionnaires are also evaluated in detail and reference to the literature study is made.

Chapter 4

A summary of the opinions from the respondents and the preferences towards beef of the employees in the two companies are dealt with in this chapter. A practical framework to measure consumers' perceptions on the quality of red meat in FERROMETALS is proposed. Conclusions and recommendations are made. The dissertation is concluded by mentioning opportunities for future research.

1.7 CHAPTER SUMMARY

In this chapter, the foundation of the study was laid. The objective of this study was to establish a framework to measure the consumers' perceptions on the quality of red meat in the FERROMETALS environment. The chapter explained the concepts and problems of quality in terms of red meat, and also provided a background to the industry. The next chapter uses the Total Quality Food Model as framework to discuss the literature concepts pertaining to red meat.

CHAPTER 2

LITERATURE STUDY

2.1 INTRODUCTION

The South African meat market is discussed in this chapter. The chapter sets off to explain general characteristics of the market, and then continues towards the Quality Food Model that is applied to the meat market. This chapter sets a literature basis for the study, as the following chapter will deal with primary data collection and empirical research.

2.2 THE SOUTH AFRICAN MEAT MARKET

2.2.1 Introduction

South African consumers frequently eat meat as part of their daily diet (AC Nielsen, 2001). The behaviour of consumers is increasingly driven by product quality and health consciousness, with a newly emerging consumption pattern focused on “healthy eating” (Verbeke, 1999:8). From a health perspective, consumers are concerned about the amount of fat and cholesterol food contain, as well as the long-term effect it has on their well-being. Sañudo et al. (2000:341) reported too much visible fat discourages the consumer and it is often removed before cooking or during the meal, especially by young consumers. The amount of fat in the diet and its saturated fatty acid content are considered major risk factors for coronary heart diseases (Sañudo et al., 2000:3342).

Eating quality, price and safety are the major factors the consumer consider when making a food choice. However, various other influences such as cultural acceptability, family income, symbolic status, food security, social status and society are recognised as contributing to meat choice (Shepherd & Sparks, 1994:203).

As consumers are increasingly more focused on the quality and nutritional characteristics of meat and meat products, of which taste, health, marbling and fat content are but a few (Verbeke, 1999:10). This could be attributed to the fact that many organisations including consumer organisations, industry, producers and Government have been involved in debates on the issues of fat and cholesterol, growth hormones and price, to name but a few (Verbeke, 1999:11).

A South African national meat consumption survey was conducted by AC Nielsen (2001). Personal interviews with structured questionnaires (translated into six languages) were used in an area of stratified probability sample of 2 481 SA households. Results showed that 55% of the consumers ate chicken, 36% beef, 16% lamb, 11% fish and 4% of the consumers ate pork at least three times a week (Anon., 2010).

Furthermore, AC Nielsen (2001) reported that the older generation consumers (50+ years) showed a greater decline in consumption of red meat in comparison to the younger generation and this could be attributed to the price as well as belief that eating red meat aggravates and causes “affluent diseases” such as heart diseases.

Consumers perceived lamb and mutton to be expensive and considered it to be high in cholesterol. Consumers prefer lean meat with minimal fat required for the flavour and juiciness (Anon., 2010a). The quality of fat is important because consumers are more and more interested in healthy products and therefore prefer lean meat.

In South Africa, certain meat retailers started to change at least part of the operations to boneless retail cuts, although fatness is mostly controlled by restriction fatness and trimming is not generally performed (Just Lamb, 2010). Adjusting these operations to trim excess fat will not only result in a more acceptable product, but will also enable processors to use carcasses of various fat classes, thereby broadening the basis of supply. However, trimming is costly and this could potentially add to the high cost of meat and it is, therefore, necessary to have an estimate of the fat yield of the different primal cuts. In addition, as different cuts accumulated fat at different rates, information of fat accumulation of cuts over different fat classes (fat levels), needs to be known in order to select the leaner cuts and carcasses to be processed for the benefit of the consumer. The challenge is to ensure that high yield traits are not promoted at the expense of eating quality. A small amount of fat is desirable to increase and sustain

tenderness and decrease the risk of the meat drying out, but too much fat decreases the retail cut yield. It should be noted that unknown to the consumer, red meat has become less fatty over the years through new breeding, feeding and trimming techniques (Williamson *et al.*, 2005:10-13) and in itself has started to affect palatability (Cameron, 2004:49). However, consumers are more willing to compromise taste for a product that is perceived to be healthier; therefore, nutrition, fat level and cholesterol affect meat consumption (Ward *et al.*, 1995:65)

2.2.2 Sensory characteristics

According to Veblen (1988:129) the six components important to the consumer when choosing meat is convenience, price, nutrition, variety, quality and good taste. The human senses have been used over centuries to evaluate the quality of foods (Lawless & Heymann, 1998:6). Because South African consumers consume meat frequently as part of their diet and enjoy the product, quality and sensory attributes such as tenderness and overall flavour are important (AC Nielsen, 2001). Texture, aroma and flavour characteristics are the main criteria used by consumers to evaluate the sensory quality of meat (Gorraiz *et al.*, 2000:137). These sensory attributes can be measured objectively by using a structured questionnaire using descriptive techniques. Descriptive sensory evaluation addresses the complexity of food systems by taking into account as much food sensory attributes or flavour notes as possible (Brovelli *et al.*, 1999:707). Descriptive methods focus on the intensities of sensory characteristics of a product such as aroma, juiciness, flavour and tenderness (Lawless & Heymann, 1998:376).

Sensory analyses are sophisticated tools and are often the final step in the evaluation of various treatments of meat and other food products (Lawless & Heymann, 1998:341). Sensory analyses form an essential part in determining the quality of meat and profiling of food because these factors of taste, aroma and texture contribute to the palatability of meat (Nevison & Muir, 2002:559). Results obtained during the sensory evaluation can provide valid and reliable information with regard to a product's sensory properties (profile). It will eventually provide insight regarding the position of a product, relative to the other competitive products in the current market on which sound decisions can be made by the meat industry (Lawless & Heymann, 1998:1).

Although the perceived healthiness of meat is of great importance for consumer preference (Fisher et al., 2000:141), one of the most important aspects of eating quality in meat is the overall acceptability of its texture (tenderness) (Risvik, 1994:67). Factors affecting muscle and meat tenderness have been extensively researched over the past 70 years and according to Dransfield (2001:74), tenderness is the primary determinant of the acceptability and eating quality of the meat. Meat tenderness is a very complex characteristic of the meat quality, as it is biologically dependent on the factors such as species, age, fat code, gender, the retail cut chosen, the method of cooking and muscle type (Dransfield, 2001:74).

Both the quality and quantity of fat in the meat and meat products are important to the consumer who are becoming more and more interested in healthy choices and prefer lean meat (Cunhal-Sendim et al., 1999:190-191). Consumers demand tender, lean meat with minimum fat required, just enough to enhance the flavour and juiciness (Ward et al., 1995:66-70).

2.2.3 Quality perception

The concept of food quality has received much attention in recent years and has also been the topic of a Special Issue of Food Quality and Preference, which gives an overview of the many different ways of approaching the concept. While many attempts have been made to clarify and define the concept (Bremmer, 2000:83), there is still no general agreement on what the term food quality covers, and how it can be measured (Acebron & Dopico, 2000:229). At the conceptual level, many of the proposed definitions include the end-user or consumer as the final judge of food quality.

2.2.4 Total Food Quality Model

The Total Food Quality Model (TFQM) framework, originally proposed by Grunert et al. (1996), is an attempt to integrate a number of approaches to analysing consumer quality perception and decision-making, notably means-ends chain theory. First of all, the TFQM distinguishes between “before” and “after” purchase evaluation. Dimensions of quality are commonly categorised into search, experience and credence characteristics (Darby & Karni, 1973:67), depending on when the consumer can ascertain a quality: a search quality (like the appearance of a piece of meat) can be

evaluated before the purchase, an experience quality (like the taste of the meat) can first be evaluated after the purchase, and a credence quality (like the healthiness of the meat) can under normal circumstances, not be evaluated by the average consumer at all, but is a question of faith and trust in the information provided.

Many characteristics of a meat like taste, cannot be ascertained before purchase, that is, taste has only limited search characteristics. In order to make a choice, the consumer will develop expectations about the quality of the meat – but it is only after consumption that experienced quality can be determined, and even this is limited in the case of credence characteristics like the healthiness of a product. The distinction between before and after purchase thus forms the basis of the TFQM.

In the before purchase part, the model shows how quality expectations are formed based on the quality cues available. Cues are pieces of information used to form quality expectations (Steenkamp & Van Trijp, 1990:310). The intrinsic quality cues cover the physical characteristics of the product, and are related to the product's technical specifications, which also include its physiological characteristics, that being characteristics that can be measured objectively. The extrinsic quality cues represent all other characteristics of the product, such as brand/label name, price, distribution, outlet, packaging, and more, of all the cues consumers are exposed to. Only those cues which are perceived will have an influence on expected quality. The cues consumers are exposed to and those they perceive are reflected by the shopping situation: the amount of information in the shop, whether purchases are planned or spontaneous, and the pressure of time while shopping.

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

Expected quality and expected fulfilment of the purchase motive constitute the positive consequences consumers expect from buying meat, and are offset against the negative consequences in the form of various (mostly monetary) costs. The trade-off determines the intention to buy. After the purchase the consumer will have the quality experiences, which often deviate from the expected quality, especially when it is based on quality cues with a low degree of predictive power. The experienced quality is influenced by many factors. The meat itself, especially its sensory characteristic (in an objective sense, as measured by a sensory panel), is obviously one determinant, but there are many others, the way the product has been prepared, situational factors such as time of day, and type of meal, the consumer's mood, previous experience, and more, and the expectation itself may also be an important variable in determining the experienced quality of the product (Schifferstein, 2001:73).

The relationship between quality expectation and quality experience (for example, before and after purchase) is commonly believed to determine product satisfaction, and consequently the probability of purchasing the product again.

In the following section, the formation of quality expectations for meat is described, drawing on a study about beef, showing that the formation of quality expectations is based on a few key cues. The question whether the formation of quality expectation can be easier by providing more product/meat information to consumer is investigated, as well as how quality is experienced after the purchases, drawing on studies on beef and mutton and the extent to which consumers seem to be able to predict their quality experiences by their quality expectations.

2.2.5 Formation of quality expectations

The major cues are identified on which consumers base their formation of quality expectations and the major dimensions of meat quality. A similar study was done previously in countries like Germany, Spain and the Republic of Ireland. The study was based on an extended conjoint analysis design, where consumers evaluated product description constructed from a factorial design of intrinsic and extrinsic quality cues. Based on focus group interviews, both intrinsic and extrinsic quality cues were selected for the study.

2.2.5.1 Intrinsic quality cues

- Cut: steak, roast, cubed, minced;
- Colour; light red, medium red, dark red for roast and steak, lighter red and darker red for cubed and minced;
- Fat lumps: major, minor (for steak, roast and cubed only);
- Fat rim: yes, or no (for steak and roast only);
- Fat content: high, low (for minced only); and
- Marbling: high, low (steak and roast only).

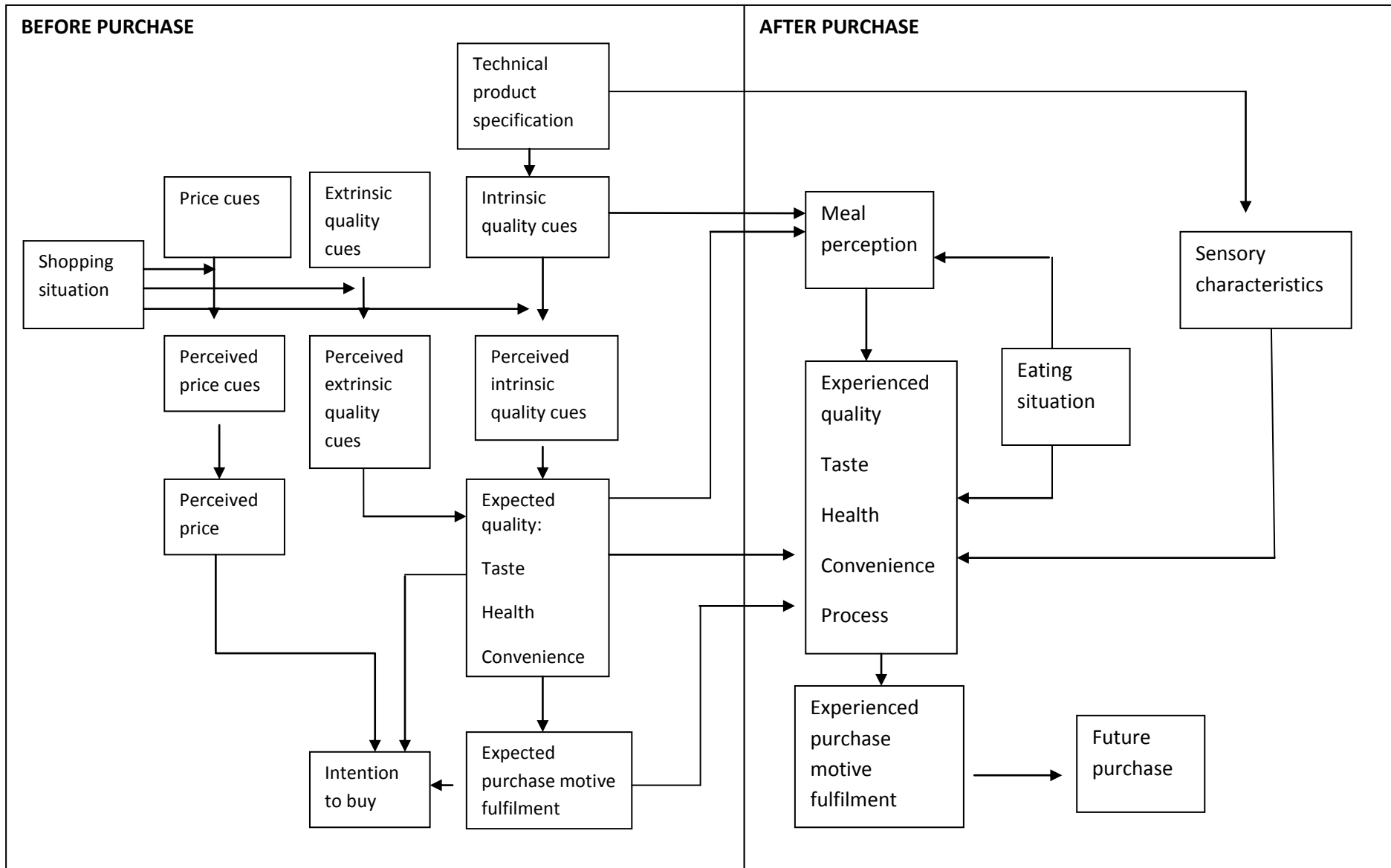
2.2.5.2 Extrinsic quality cues

- Price: low, medium, high; and
- Information on animal production: no information, information “this meat is from animal bred and fed with due consideration to animal welfare and without artificial hormones and additives”.

2.2.6 Quality expectations and quality experience

Consumers in general are not well educated and have limited ability to evaluate fresh meat. They rely on visual appeal rather than physical attributes such as the type of cut, marbling and maturity of the meat. It is therefore not surprising that low correspondence between quality expectations and quality experience exists between the before and after consumption situation of meat.

FIGURE: 2.1: THE TOTAL FOOD QUALITY MODEL



2.2.7 Quality dimension and consumer segments

Having established a general framework for the analysis of food choice and quality perception, this section introduces four dimensions, which I believe are quite universal for consumer quality perception of food products. A distinction between consumer segments, that is, groups of consumers will be made, which differ in the way they perceive food quality and make choices. This prepares the ground for the more detailed analysis in the subsequent sections of the study.

2.2.8 Quality dimensions

The Total Food Quality Model views quality as a construct in the mind of the consumer, and distinguishes between expected and experienced quality. In addition, it views quality as an abstract construct, inferred from informational cues and own experience, which is instrumental for the attainment of purchase motives. Finally, quality has been regarded as multidimensional. The following quality dimensions are present in meat:

- **Enjoyment:** For most people, food is, and has always been, a matter of pleasure. The hedonic characteristics of food – primarily *taste*, but also appearance and smell – thus constitutes a dimension of quality for consumers. This has always been the case, of course, but in recent decades consumers have shown an increasing interest in other quality dimensions as well. The hedonic quality dimension mostly represents an *experience characteristics* of a food product, since taste can usually only be established after consumption.
- **Health** is a dimension that has become very important to many consumers and a number of studies indicate that, today health is as important as taste, and that, consumers form preferences based on this dimension motivated by expectations of both a longer life and one of higher quality (Roininen *et al.*, 1999). Here, we regard health-oriented food quality as how consumers perceive a food product will affect their health. This includes functional qualities of foods, but consumers are also concerned about safety and risk-related issues. Health-related qualities are mostly *credence characteristics*, since the consequences for one's health of eating a specific food is a matter of trust, and can seldom be ascertained after consumption.

- **Convenience** is another factor of increasing importance. From a consumer point of view, convenience is much more than just the ease of purchase or quick consumption. Convenience means the saving of time, physical or mental energy at one or more stages of the overall meal process: planning and shopping, storage and preparation of products, consumption and the cleaning up and disposal of leftovers (Gofton, 1995:11).

These three dimensions should not be regarded as independent – there are clearly both overlaps and interrelationships. These interrelationships are not unambiguous, and vary from product, for instance, consumers sometimes perceive good taste and healthiness to be positively correlated, and negatively correlated at other times. Taste is sometimes perceived to be related to the process quality dimension and at other times not. Such inference is typical of consumer quality perception and more commentary on that later in the study.

2.2.9 Consumer segments

While we believe that the four quality dimensions presented above are fairly universal, its relative importance differs between consumers. Generally, the processes of food choice and quality perception are characterised by individual differences; not only will there be differences in the relative importance of the quality dimension but also in the way these are inferred from available cues, in the way consumers shop and are exposed to various kinds of quality cues, and in the way they prepare and eat their meals resulting in the quality experienced during consumption. Furthermore, the purchase motives driving the meat choice and quality perception process will differ between consumers.

In order to take account of these differences, it is useful to distinguish between different consumer segments. Categorised consumers according to their different ways of shopping, ways of preparing meals, eating situations, ways of weighing quality dimension and purchase motive for red meat, that being their food related lifestyle (Brunsø & Grunert, 1998;145) which define the general pattern of how consumers use food to fulfil basic motives or attain life values.

Extensive research on consumers' food related lifestyle in a number of European countries (Grunert et al., 2001:221) and also some countries outside Europe (Akesgaard & Brunsø, 1999:69) has established a number of basic food consumer segments which are described below together with general demographic characteristics:

- **The uninvolved consumer:** Food is not a central element in their lives. Consequently, their purchase motives for food are weak, and their interest in food quality is limited mostly to the convenience aspect. They are also uninterested in most aspects of shopping; they do not use speciality shops. They do not read product information, limiting their exposure to and processing food quality cues. Even their interest in price is limited. They have no interest in cooking, tend not to plan their meals and snack a great deal. Compared to the average consumer, these consumers are single, young and have part-time or full time jobs, average to low level of income and tend to live in big cities.
- **The careless consumer:** In many ways, these consumers resemble the uninvolved food consumer, in the sense that food is not very important to them, and with the exception of convenience, their interest in food quality is correspondingly low. The main difference is that these consumers are interested in novelty: they like new products and tend to buy them spontaneously, at least as long as these do not require a great effort in the kitchen or new cooking skills. The careless consumers are in general, as the uninvolved consumer, young and often live in big cities. But in contrast to the uninvolved, these consumers are more educated and then lie in the upper income brackets.
- **The conservative consumer:** For these consumers, security and stability achieved by following traditional meat patterns is a major purchase motive. They are interested in the taste and health aspects of food products, but are not particularly interested in convenience, since meals are prepared in the traditional way and regarded as part of the woman's task. The conservative food consumers have the highest average age and they are the least educated. Households are on average smaller, and household income is in general lower than that of the other segments. These consumers tend to live in rural areas.

- **The adventurous consumer:** While these consumers have a somewhat above-average interest with regard to quality aspects, this segment is mainly characterised by the effort they put into the preparation of the meals. They are very interested in cooking, look for new recipes and new ways of cooking, involve the whole family in the cooking process, and are not interested in convenience and reject the notion that cooking is the woman's task. They want quality, and demand good taste in food products. Self-fulfilment in food is an important purchase motive. Food and food products are important elements in these consumers' lives. Cooking is a creative and social process for the whole family. The adventurous food consumer is, in general, from the young part of the population and the household size is above average. The adventurous food consumers have the highest educational level and have high income. They tend to live in big cities.

-

2.2.10 Classification of South African Beef – a key to customer satisfaction

To prevent disappointment in the quality of your beef, only buy classified meat products. Therefore, request the meat outlet to classify meat. Furthermore, the consumer must be aware of the hygiene conditions at the outlet from where they want to purchase beef. Meat classification is a mark of quality that indicates the value differences (money value) between different qualities of meat.

In order to ensure that the different meat qualities are handled according to predetermined norms in legislation, SAMIC (South African Meat Industry Company) has been appointed by the Government to monitor uniform standards. SAMIC also liaises with producers, abattoirs, retailers and consumers in order to ensure uniform standards are applied.

2.2.10.1 Meat traders

For meat traders the following aspects regarding meat classification are important:

- To describe the carcass in simple terms for purchasing;
- To use a variety in the market for optimal consumer satisfaction;
- Price differences; and
- Determination of sales prices.

If abattoirs decide to register with the Government to make use of the voluntary meat classification system the following requirements are applicable:

- Every abattoir must be registered by Product Standards at the National Department of Agriculture in order to obtain a unique identification number.
- Every abattoir must acquire the necessary stamps and roller-mark equipment for the relevant specie that is slaughtered.
- Every abattoir owner must comply with regulations as determined by legislation.
- Every abattoir must comply with the Meat Safety Act (Act 40 of 2000) (South Africa, 2000).

The following are the characteristics of meat classification:

2.2.10.2 Age

AAA: This code means that the colour of the roller mark on the carcass is PURPLE and is an indication that the meat is from a young animal (no permanent incisors) and thus the more tender meat.

ABAB: This code means that the colour of the roller mark on the carcass is GREEN and is an indication that the meat is from a young animal in transition to an adult animal (1-2 permanent incisors) and thus tender meat.

BBB: This code means that the colour of the roller mark on the carcass is BROWN and is an indication that the meat is from an adult animal (1-6 permanent incisors) and thus less tender but with a lot of flavour.

CCC: This code means that the colour of the roller mark on the carcass is RED and is an indication that the meat is from an adult animal (>6 permanent incisors) and thus less tender but perfect for stews.

2.2.10.3 Fatness

It is the right of the consumer to choose how much visible fat they prefer. Fat classes are indicated in the following manners:

000 - means **no visible** fat on carcass

111 - means a **very lean** carcass

222 - means a **lean** carcass

333 - means a **medium** fat carcass

444 - means a **fat** carcass

555 - means an **over-fat** carcass

666 - means an **excessively fat** carcass

2.2.10.4 Other characteristics

Although the meat classification system contains five characteristics the above-mentioned two (age and fatness) are of importance during purchasing. The other three characteristics are discussed shortly to give more information.

- **Conformation**

- Since some consumers purchase in bulk (hind or fore quarter), most purchases are done on visual selection. This means that the consumer will buy on what is seen by the way of conformation of the carcass. Conformation comprises five classes defined in the following manner:

- a **very flat** carcass
- a **flat** carcass
- a **medium** carcass
- a **round** carcass
- a **very round** carcass

- **Damage**

This category is only used where possible sections of the carcass is cut off after slaughtering as a result of possible bruises or any other aesthetic reasons. Damage comprises three classes, defined as the following:

- **Slight** damage where very little meat was removed.
- **Moderate** damage where fat and some meat or certain muscle was removed to get rid of meat and fat that would not be fit for human consumption.

- **Serious** damage where muscle must have been cut deep to get rid of meat and fat not fit for human consumption.

Usually, the damage characteristic is used by traders to purchase meat to re-sell since the damage influences the price of the meat if the trader is not aware of what is being bought. This means that the trader will purchase these carcasses at a lower price, depending on the level of damage and on which part of the carcass the damages occur.

- **Gender**

Only bull and ram carcasses as well as that of a hamel, a kapater or an ox showing signs of late castration in the AB-, B- en C-age classes are marked with a BLACK “MD” stamp in order to inform prospective buyers that these carcass are from male animals since the taste and colour of the meat might differ from other carcass.

If you want to buy your red meat with confidence, insist on any of the roller marks according to your choice and preferences as indicated above. The aim of the meat classification roller mark on the beef carcass is to reassure the trader and customer regarding specific preferences as well as guaranteed quality meat during purchasing. Many characteristics of meat products, like taste, cannot be ascertained before purchase.

2.3 SUMMARY

This chapter provided insight into the meat market and the quality that is classified according the various measures such as age, fatness and other criteria. This supplies the consumer with valuable information that can be used during the purchase of red meat in order to exercise his or her meat preferences. The next chapter deals with the empirical research and presents not only the research methodology but also the results of the research.

CHAPTER 3

RESEARCH METHODOLOGY AND FINDINGS

3.1 INTRODUCTION

The literature study that was done in chapter 2 focused on the concepts of a consumer preference with regard to beef quality. The aspects that were identified could enable a researcher to set up a Total Food Quality Model that enables the consumer to make some decisions before and after purchasing the meat. The aim of chapter 3 is to describe the research methodology applied in the study to do quantitative research. The objectives of the qualitative study were explained in chapter 1. The findings and recommendations from the qualitative study can be seen in chapter 4.

3.2 FERROMETALS BACKGROUND

As the population of this study consisted of employees of the company FERROMETALS, a short background to the company is provided. FERROMETALS is one division in SAMANCOR Chrome (SAMANCOR Cr). SAMANCOR Cr comprises two mining divisions and three chrome smelter divisions. SAMANCOR Cr is part of the pyro-metallurgical industry of South Africa. Pyro-metallurgy is the process of extraction of or the processing of metals and materials at high temperatures. FERROMETALS produces ferrochrome by reducing the chromite (chrome containing ore) with carbon in electrical furnaces. Ferrochrome is a metal that contains 50% chrome (Cr), 35% iron (Fe), 7% carbon (C) and 4% silicon (Si). This metal is mainly used as a source of chrome in the production of stainless steels and as alloying element in steel. FERROMETALS currently has three furnaces running that are tapping, on average, 1000 tons of ferrochrome per day. The complexity of the ferrochrome process results in the need of highly skilled employees. The complexity of the process is largely as a result of variability in the raw materials that are being used as input to the process.

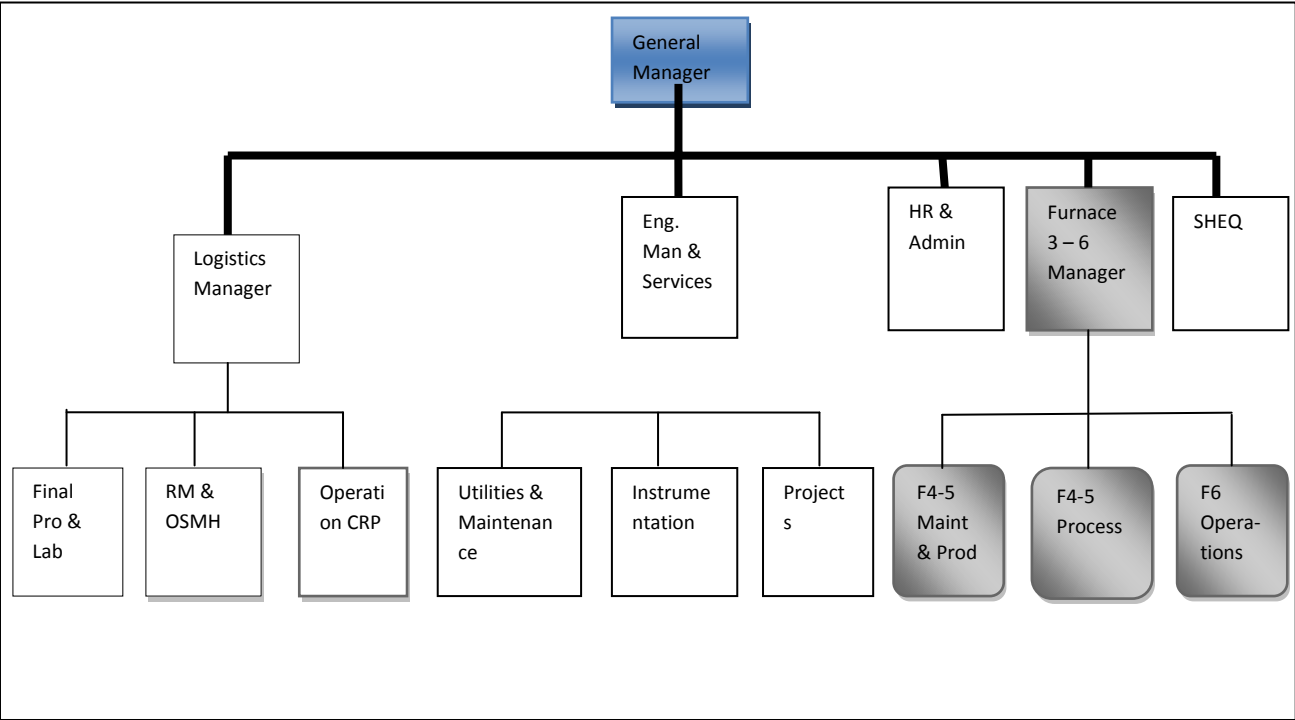
3.3 PROCEDURE OF THE QUANTITATIVE STUDY

The procedure followed in the quantitative study in terms of the participants (sample group), the different aspects of the survey instrument and the analysis techniques used follow below.

3.3.1 Sample group and size

The main target group of the study is the East and West Plant Furnace Operations Department at FERROMETALS.

FIGURE 3.1: FERROMETALS ORGANISATIONAL DIAGRAM



Source: FERROMETALS (2010)

The organisational structure of FERROMETALS can be seen in figure 3.1. The target group of the quantitative study is Furnace 4,5 & 6 Operations Department middle management and technical staff, as indicated in figure 3.1 (the grey departments).

This excludes employees in the Human Resources, Administration and Safety-Health-Environment-and-Quality sections (green departments). The manager and the superintendents are seen as middle management and the specialists and practitioners are seen as technical staff. Table 3.1 gives a full breakdown of the number of

employees found in these groups. It can be seen in this table that the total number of employees in the population is 198.

TABLE 3.2: BREAKDOWN OF POPULATION SIZE

SECTION	POSITIONAL LEVEL	AMOUNT
Logistics	Manager	1
	Superintendent	7
	Specialist	4
	Practitioner	5
	Operators	40
Engineering Services & IC3	Manager	1
	Superintendent	7
	Specialist	9
	Practitioner	13
	Operators	42
Furnaces 4 – 6	Manager	1
	Superintendent	9
	Specialist	5
	Practitioner	6
	Operators	48
Total	Manager	3
	Superintendent	23
	Specialist	18
	Practitioner	24
	Operators	130

The first question in quantitative research is: “What is the size of the sample needed?” Lenth (2001:1) stated that it must be “big enough” so that the results are of scientific significance as well as of statistical significance. Lenth further argues that it is also important that the study is not “too big”. In this scenario, the results will have little scientific importance, but nevertheless will be statistically significant. The sample size is also important for economic reasons (Lenth, 2001:3). An undersized study can be a

waste of resources for not having the capability to produce useful results, while an oversized one uses more resources than are necessary. Therefore, it is important to have a sample with the right size.

From the above, it can be seen that the decision of the sample size is very important and complex. The equation for calculation of the sample size that was used can be seen in equation 3.1.

Equation 3.2: Sample size

$$S = \frac{P(1-P)}{\frac{A^2}{Z^2} + \frac{P(1-P)}{N}}$$

Where:

- S = Sample size required
- P = Estimate of people who possess attribute of interest (80%)
- A = Accuracy desired (10%)
- Z = The number of standard deviations of the sampling distribution that correspond to the desired confidence level (Z equals to 1.64 for a 90% confidence interval)
- N = Number of people in population (198)

The number of employees in the population is 198 (as seen in table 3.1). For these set values it was calculated that 35 questionnaires were required back from the respondents.

3.3.2 Survey instrument

There are various instruments that can be used by researchers for capturing the information needed. The schools of thoughts can be grouped into two, namely, the qualitative and quantitative approach. Qualitative research is a subjective approach (Neill, 2007). In this approach, the individual's interpretation of events is important; for example, the participant observation during an in-depth interview. Qualitative research involves analysis of data such as words (for example, from interviews), pictures (for example, video), or objects (for example, an artefact). Quantitative research is an objective approach (Neill, 2007). This method seeks precise measurement and analysis of target concepts. Researchers use tools such as surveys and questionnaires for gathering the data needed. The quantitative research approach is less time-consuming

and the data are in the form of numbers and statistics. From this kind of data, relationships can be established, hypotheses can be tested and models can be derived.

A quantitative approach was chosen by the researcher in order to objectively meet the research objectives and aims. This decision was also based on the time and costs involved in conducting a qualitative research approach. The survey instrument used in this study was a questionnaire. The advantages and disadvantages of using a questionnaire were considered and it justified the use in this study. A number of sources were used in compiling the questionnaire. The questionnaire consisted of 45 selection type questions, including before and after purchase experiences where respondents answered in the form of a 5-point Likert scale. The scale was from 1 (strongly disagree) to 5 (strongly agree). Provision was also made for a selection on the scale if the respondent did not know the answer to the question. The questionnaire can be viewed in Appendix 1.

Two methods of distribution were used – by hand by the author himself and by e-mail. The response rate was 79%. A total of 101 questionnaires were sent out and 79 were received back. The high response rate can be attributed to the fact that most of the questionnaires were distributed in-house and persistence in the collection of the completed forms. The number of returned questionnaires is higher than the required sample size that was calculated previously. The results from analysing the questionnaires will therefore result in a smaller error than 10% with a confidence interval level of 90%.

3.3.3 Assessment of internal consistency in the survey

The internal consistency is a measurement to assess how reliably the survey questions were answered. Questionnaires are widely used to extract information from a population sample (Leontitsis & Pagge, 2006:336). How does one know that the answers obtained from the questionnaires are right (or reliable)? Leontitsis and Pagge (2006:337) suggest the usage of the Cronbach alpha test. This coefficient (α) theoretically ranges from 0 to 1. If α is close to 0 the answers are not reliable at all. If α is close to 1, the answers are very reliable. As a rule of thumb, if $\alpha \geq 0.8$ the answers are considered reliable (Leontitsis & Pagge, 2006:337). It was decided to use the Cronbach alpha test to measure internal consistency of the questionnaires in this study.

The formula for calculation of the Cronbach alpha coefficient can be seen in equation 3.2.

Equation 3.2: Cronbach alpha coefficient

$$\alpha = \frac{k}{k - 1} \left[\frac{\sigma_T^2 - \sum_{i=1}^k \sigma_i^2}{\sigma_T^2} \right]$$

Where:

- α = Cronbach alpha value
- k = the number of items in the analysis
- σ_i^2 = sample variance on the i^{th} item (question's variance)
- σ_T^2 = sample variance of the total (questionnaire variance in total)

$$\alpha = \frac{k}{k - 1} \left[\frac{\sigma_T^2 - \sum_{i=1}^k \sigma_i^2}{\sigma_T^2} \right]$$

The internal consistency of the whole questionnaire was tested with the help of an MS Excel spreadsheet that was developed by Siegle (2007).

The Cronbach alpha value was calculated to be equal to 0.93. This value is greater than the value of 0.8. Thus the respondents' views can be used in order to draw conclusions regarding the perception of consumers with regard to their pre and post experience of beef consumption in FERROMETALS. The information that was captured through the questionnaire was compiled and analysed and will be discussed in the next section.

3.3.4 Margin of error of answers

The margin of error of the questions was calculated at a 95% confidence level. Equation 3.3 was used to calculate the margin of error on the questions (Fisher, 2007:199). The value of the margin of error can be seen in section 3.4.

Equation 3.3: Calculation for margin of error

$$L = 2 \sqrt{\frac{p(100 - p)}{n}}$$

Were:

- L = the margin of error
- = the percentage of answers received back per question
- = the number of questionnaires received back

3.4 RESULTS

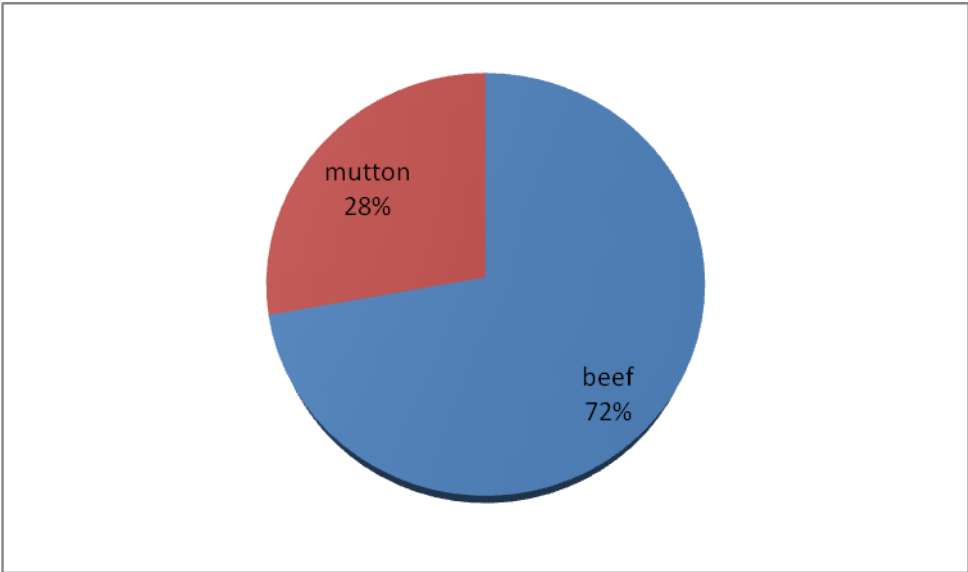
In this section, the outcomes on the opinions of the respondents regarding the questions in the questionnaire will be discussed by making use of descriptive statistics as well as the margin of error that was seen above. Minitab 15 and MS Excel are the software used to analyse the data from the questionnaires.

3.4.1 Demarcation of respondents

A total of 198 Operators, Practitioners, Specialists, Superintendents and the Operation Manager responded to the survey questionnaire that was conducted in FERROMETALS (FMT). The respondents represented the balanced population ranging from low and high graded employees from FMT.

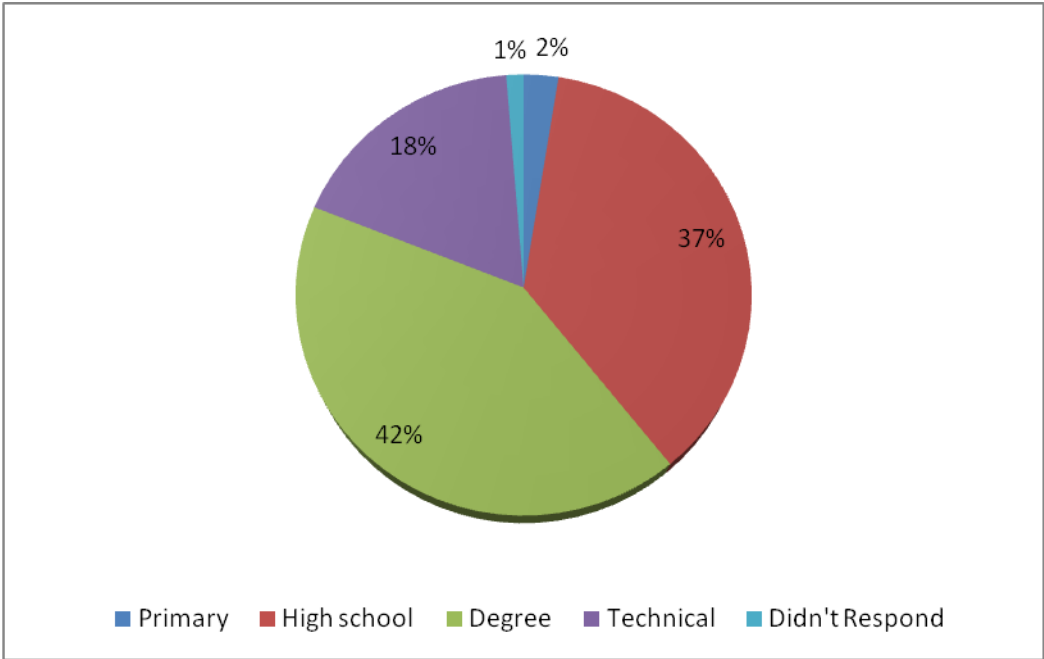
3.4.2 Demographic information of respondents

FIGURE 2.1: FAMILY PREFERENCE



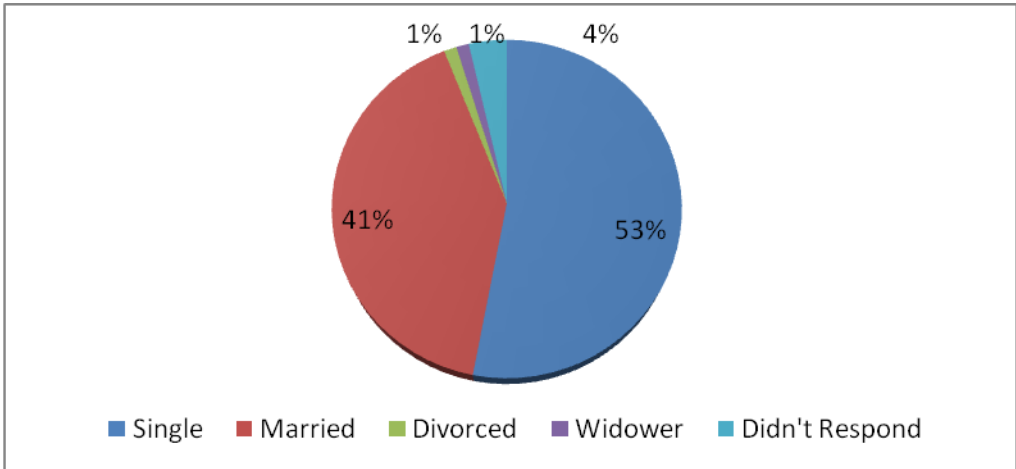
The respondents were asked to indicate their family preference when buying meat, and 72% (n=57) said they prefer beef over mutton. This percentage also quantifies the surveying preference that the majority of the respondents were the right sample to complete the questionnaire.

FIGURE 3.2: EDUCATIONAL BACKGROUND



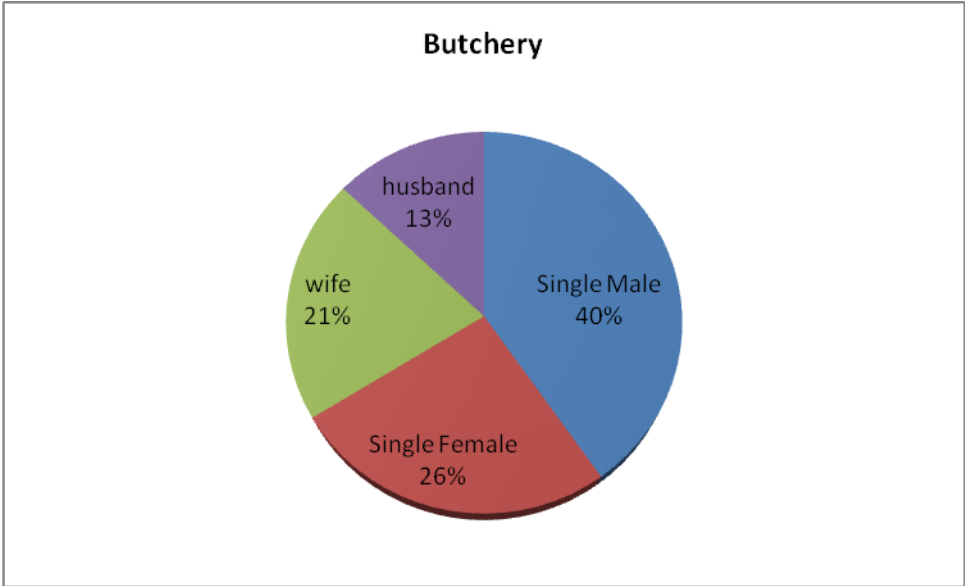
The reported educational levels comprised the following: primary school (2%, n=2), high school (37%, n=29), university (42%, n=33) and technical college (18%, n=14). The educational level in the industry is dominated by university degree and high school employees. This information was required in the survey to determine the level of the reading, where elements of reading the meat nutritional information come into play, and whether they can read the information and interpret it.

FIGURE 3.3: MARITAL STATUS



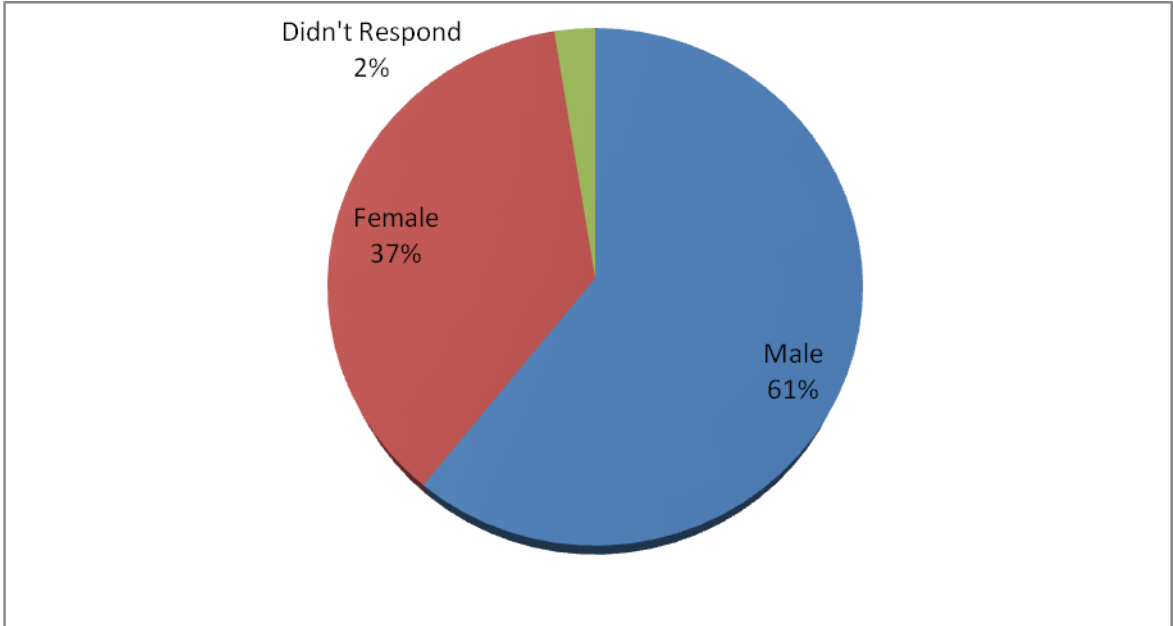
The figure above illustrates how distributed the population of the sample was, and 53% (n=44) were single, married 41% (n=30).

FIGURE 3.4: WHICH FAMILY MEMBER BUYS AT THE BUTCHERY?



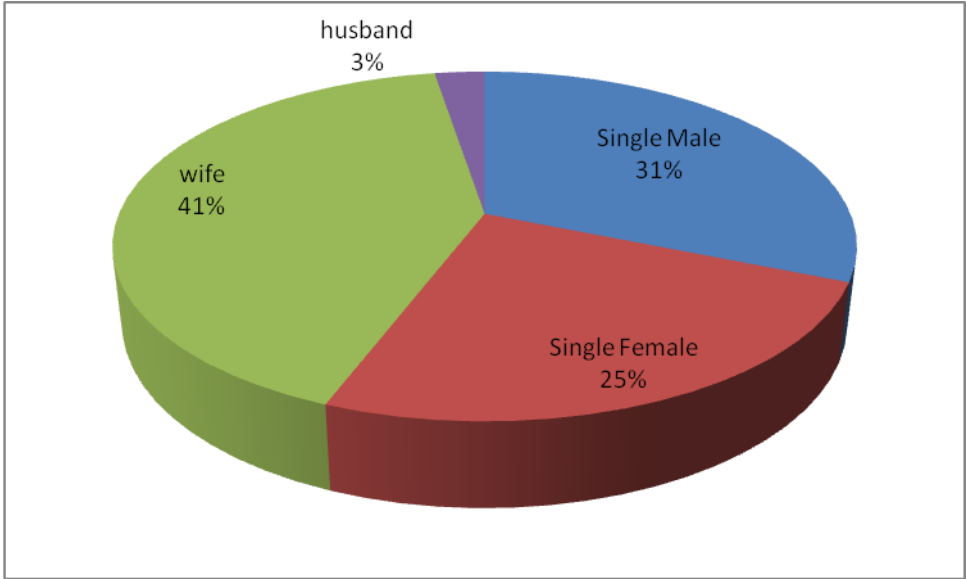
The largest response came from men who are single, and 70% of those have selected "I am" option on the questionnaire. A further breakdown on the respondents was done, and the following findings were reached: single males were 40% (n=31), single female 26% (n=20), husbands 13% (n=10) and married women (wife) 21% (n=16).

FIGURE 3.5: GENDER DISTRIBUTION



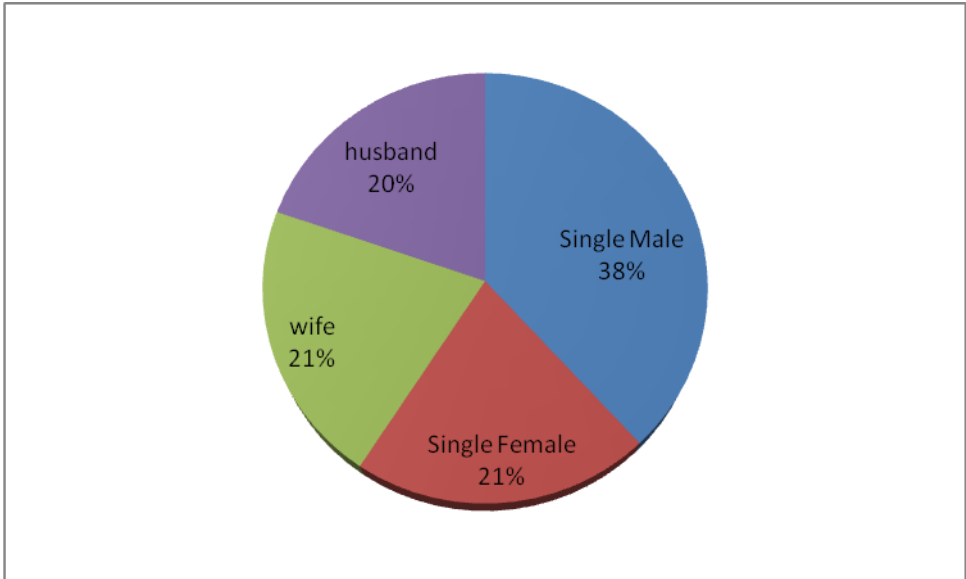
Respondents were asked to indicate their gender. The majority (61%, n=48) of the sample were male consumers, while 37% (29) were female. Since the industry in which the study was done is male dominated and it is not surprising to find the largest portion of the respondents are male. The statistical information pertaining to the gender distribution of the respondents can be seen in figure 3.5. This is not surprising as the selected company's employee demographics are mainly male.

FIGURE 3.6: WHO DOES THE COOKING?



The above figure summarises the following: 41% of the respondents were married women who cook for their family. Since this is the culture in the South African population, women are those who cook most of the time, and automatically they are the ones who know which items are depleting in the household pantry and they usually replace the food. Only 3% of husbands do the cooking in the household.

FIGURE 3.7: WHO'S CHOOSING WHICH CUT TO BUY?



Since the respondents is generally single males, as can be seen in the figure above (38%). Resultantly, they care for themselves and as such they will go to the butcher and decide on the cut to buy.

3.4.3 Perceptions of red meat

The perceptions on red meat are shown in the tables below. A number of different perceptual measures (such as technical specifications, intrinsic values, visual stimuli, and others) were applied to determine the beliefs held by consumers of red meat.

3.4.3.1 Technical meat specification

TABLE 3.2: MEAN VALUES OF TECHNICAL MEAT SPECIFICATIONS

A	TECHNICAL MEAT SPECIFICATION	Mean	Std Dev.	Mode
1	I normally buy meat according to the nutritional value in the pack	3.09	1.33	3
2	I highly consider the preservatives added to the meat	3.12	1.35	4
3	I highly consider the shelf life of the meat pack when buying meat from the shopping centres	4.00	1.25	5
4	I am normally looking out for the roller stamp of the carcass (differentiate grade/age of the carcass)	2.89	1.31	4
5	I prefer readymade marinated beef	2.35	1.35	1
Mean Value		3.09	1.32	

When consumers were asked how often they read technical specification labels on the meat pack before purchasing, (n=25) indicated that sometimes they do, which translate to 33% of the respondents and give an average score of 3.1. However, when asked if they consider the shelf life of the meat before purchasing and 50% (n=37) of the respondents strongly agreed with the statement. This shows how sensitive the consumers are in choosing the youngest shelf life of the meat available on the shelf. The convenience of buying is rated very high; they give themselves time in buying quality meat. Shelf life of the meat in many cases reflects the freshness of the meat.

The respondents strictly showed that they strongly disagree with having their beef marinated prior to buying it. This also raises many concerns of the content of the marinated source used in that particular meat. They prefer to marinate the meat themselves. The average score for the total questionnaire is 3.09, which indicates that the respondents do sometimes look at the technical specifications of the meat pack.

By using equation 3.4 the average margin of error of this question is 5.08%.

3.4.3.2 Intrinsic attributes

TABLE 3.3: MEAN VALUES OF INTRINSIC ATTRIBUTES

B	INTRINSIC ATTRIBUTES	Mean	Std Dev.	Mode
1	I buy meat from a known retailer	4.22	1.14	5
2	I prefer buying meat from the grocery store rather than from the butchery	2.78	1.46	1
3	I prefer buying meat on R/kg rather than in bulk	3.29	1.48	5
4	I prefer buying meat in bulk rather than in R/Kg	2.88	1.65	1
5	I prefer buying meat in a neat package from a well known supplier	4.34	0.97	5
6	I know which cut to buy ensuring that I make an accurate cost effective decision	3.82	1.27	5
Mean Value		3.56	1.33	

Some 57% of the respondents strongly agreed (mode=5) with the statement of purchasing meat from the butcher rather than in the grocery store with a mean of 4.22 (n=45) and the packaging of the meat is also important to them with the average of 4.34 (n=47). Mostly all the respondents scored buying meat from a well known supplier very high, and this also attributes to the trust of the quality of the meat the supplier renders. The mean value of the questionnaire is rated at 3.56 on average which is acceptable.

The total average of the intrinsic attributes has been scored at 3.56, and the main contributor to lower this average is that the majority of the respondents strongly disagreed with buying meat from the grocery store than in the butcher, because there is a belief that the meat at the grocery store is much more expensive than in the butchery.

The margin of error for question b (Intrinsic Attributes) of this question is 1.18%, hence all the respondents answered the question of the supplier of buying the meat, and they made it clear that they prefer buying meat from the butchery than in the grocery store, and the margin of error is 0% on a 95% confidence level.

3.4.3.3 Visual stimulus

TABLE 3.4: MEAN VALUES OF VISUAL STIMULI FOR PURCHASING MEAT

C	VISUAL STIMULUS FOR PURCHASING	Mean	Std Dev.	Mode
1	Freshness	4.91	0.51	5
2	Ingredients	3.44	1.34	5
3	Price	4.37	0.97	5
Mean Value		4.24	2.83	

Buying what you see is also important to the consumers, and the visual stimulus for purchasing meat was also researched. The consumers were asked to choose from freshness, ingredients and price. Freshness was the most chosen option with the mean of 4.91 (96%, n=76), followed by price at 4.24 (63%, n=50). Looking at the glance of the meat on the shelf, one can tell the freshness of the meat when considering the colour and the aroma of the meat. In most cases, the freshness of the meat is directly linked with the price tag, and the majority indicated that the most important quality dimension stimulating them when purchasing the meat is freshness rather than price.

The total average score for this question is 4.24, which is attributed by choosing high scores such as 4 and above. This is not unexpected as the column reflecting the “mode” (see table above) indicated that the choice on the questionnaire was 5 on the majority of the time.

By using equation 3.4 the average margin of error of this question is 1.19%, and hence all the respondents answered the question of whether they prefer freshness above price and ingredients, and the margin of error for price and freshness is both zero (0%). And 26% were indecisive either disagreeing or strongly disagreeing on a 95% confidence level.

3.4.3.4 Important issues

TABLE 3.5: MEAN VALUES OF IMPORTANT ISSUES TO A CONSUMER CONSIDERING WHEN PURCHASING MEAT

D	WHAT IS CONSIDERED BY A CONSUMER TO BE IMPORTANT WHEN PURCHASING MEAT?	Mean	Std Dev.	Mode
1	Freshness	4.85	0.68	5
2	Ingredients	3.56	1.39	5
3	Price	4.48	1.02	5
4	Colour	4.22	1.21	5
Mean Value:		4.28	1.07	5

Table 3.5 illustrates what seems to be important to consumers when purchasing meat. Freshness scored very high, followed by the price and lastly by colour. This means that the consumers are prepared to buy any meat which is fresh and the price seems to be least on their minds.

The ingredients question rated higher than others at 4.28. All the questions scores highly and price and freshness seem to be the most important considerations. Interestingly 4% of the respondents did not complete the questionnaire.

3.4.3.5 Information displayed

TABLE 3.6: MEAN VALUES OF INFORMATION DISPLAYED ON THE MEAT LABEL

E	INFORMATION DISPLAYED ON MEAT	Mean	Std Dev.	Mode
1	Freshness	4.58	0.88	5
2	Fat content	3.33	1.36	3
3	Price	4.33	1.03	5
4	Nutritional information	3.33	1.42	5
Mean Value:		3.89	1.19	

It goes without saying that the freshness of the meat is everyone's priority. A total of 77% (n=61) consistently strongly agreed with the statement. The price tag of the meat also scored high (59%); n=47 consistently chose strongly agreed.

The average margin of error of this question is 2.15%, and not all the respondents did compromise on the freshness and the price, where the margin of error been zero (0%), and 41% of the respondents were indecisive (scored 3) of whether the fat content of the meat is an issue to them or not.

3.4.3.6 Intention to buy

TABLE 3.7: MEAN VALUES OF INTENTION TO BUY MEAT FOR CONSUMPTION

F	INTENTION OF BUYING MEAT FOR CONSUMPTION	Mean	Std Dev.	Mode
1	I don't compromise the quality of the meat when doing a barbecue (braai)	4.00	1.26	5
2	I buy meat in accordance to family preference	4.05	1.25	5
3	I normally avoid buying meat at the beginning or the end of the month or holiday seasons	2.16	1.21	1
4	I normally read and evaluate meat advertisements critically and regularly	2.69	1.23	3
Mean Value:		3.23	1.24	

Respondents, when asked if they would compromise the quality of the meat when doing a braai (50%, n=39) strongly disagreed. The majority of the respondents strongly disagreed that they prefer to buying meat during holiday seasons. They indicated that they buy meat any time of the season. They are also wary of specials as it is perceived that the retailer might try to get rid of old meat. Respondents felt that they cannot buy cheap meat for the sake of the barbeque, and they buy meat in accordance to the family’s preferences.

The average margin of error of this question is 3.22%. Some 22% agreed and 50% strongly agreed to the statement of not compromising the quality of the meat when doing a braai. A total of 26% agreed and 50% strongly agreed to the statement of buying the meat in accordance to the family preferences.

3.4.3.7 Information displayed

TABLE 3.7: MEAN VALUES OF HEALTH CONSCIOUSNESS

G	HEALTH CONSCIOUS	Mean	Std Dev.	Mode
1	I don't compromise on the quality of the meat I buy	3.65	1.47	5
2	I give myself enough time to buy meat because its quality is very important to my health	4.00	1.16	5
3	I trust and believe that eating healthily in terms of the nutritional value displayed on the meat packing can prolong my life	3.81	1.23	5
4	I don't buy meat from unknown outlets	3.83	1.45	5
5	I prefer buying meat from accredited outlets	3.70	1.48	5
6	I buy neatly packed meat with labelling showing shelf life	4.08	1.13	5
Mean Value:		3.84	1.36	

Health is becoming a quality dimension that is growing and becoming more popular with the current generation; they need to know and understand what they are eating since red meat is mainly linked to health complications such as heart diseases. Reading the

information on the meat pack is crucial for the consumers, especially when their health condition is at stake.

The total average of the question shows clearly that health is an important aspect of consumer quality perception and choice. Consumers have their own subjective ideas about what healthy food is. Consumers are not experts, and have little insight into medical or nutritional questions. Nonetheless, they have to make meat purchase decisions all the time, where health considerations play a major role. Therefore, they develop their own indicators for healthiness. These are based on the information accumulated over their lifetime, which can sometimes be way off the mark compared with objective health considerations. Consumers become more aware of some widely discussed concepts, such as low fat, vitamins, cholesterol and unsaturated fatty acids, but other perceptions of healthiness are based on more general and vague considerations like naturalness. The average margin of error of this question is 3.19%.

3.4.3.8 Convenience

TABLE 3.9: MEAN VALUES OF CONVENIENCE

H	CONVENIENCE	Mean	Std Dev.	Mode
1	I buy whichever meat is available on the shelf	1.74	1.08	1
2	I only buy meat from shops close by	2.27	1.15	1
3	I always buy roller-stamped meat	2.73	1.28	3
Mean Value:		2.25	1.18	

Convenience reflects a tendency to reduce the time and effort used to prepare and consume food. When the respondents were asked (81%, n=63) whether they buy whichever meat are available on the shelf, the score became less than 2 for the choice strongly disagree. They buy the kind of meat without taking convenience into account.

The average margin of error of this question is 3.50%, and 58% strongly agreed and 23% disagreed to the statement of buying whichever meat is available on the shelf and whether they bought the meat from any close-by shop.

3.4.3.9 Eating habits

TABLE 3.10: MEAN VALUES OF EATING SITUATION

I	EATING SITUATION	MEAN	STD DEV.	Mode
1	I can compare between superior and inferior meat quality after I have eaten the meat	3.63	1.20	4
2	Packaging of raw meat is important to me	4.07	1.11	5
3	When buying meat in bulk I set the freezer temperature according to the recommended settings	2.84	1.42	3
4	I prefer buying known brands of meat	3.95	1.12	4
5	I prefer knowing the origin of the meat before buying it	3.47	1.45	5
6	I prefer to remove the fat layer before eating prepared meat	3.03	1.40	3
7	I prefer to make a quick meal	3.09	1.42	3
Mean Value:		3.44	1.30	

Packaging of the meat is very important to the consumers (76%, n=59). Knowing the origin of the meat before buying it is also crucial as this also might have effects on the quality of the meat and the feeding regime of the animal.

The average score of the question is 3.44, and the majority of the respondents agreed with the statement of knowing the origin of the meat before they buy it.

The average margin of error of this question is 2.92%, and the margin of error on buying from a known brand, removing the fat layer before consuming the meat, and preference of a quick meal are all zero (0%). Some 37% (n=29) strongly agreed with the statement of buying from a known brand/outlet instills consumer trust because reputable brands and retailers are perceived to be suppliers of quality meat products.

3.4.3.10 Future purchase

TABLE 3.11: MEAN VALUES OF FUTURE PURCHASES

J	FUTURE PURCHASES	MEAN	STD DEV.	Mode
1	I can recommend anyone to a butcher that serves good quality meat	4.69	0.74	5
2	I can relate the price rate (R/kg) with the size of the cut (value for money)	3.91	1.17	5
3	I critically analyse the meat advertisements and then make a purchasing decision	3.35	1.29	4
Mean Value:		3.99	1.01	

A future purchase of the meat question is rated as strongly agreed by the consumers. This reflects the moment in time when the purchased meat has been consumed. The real quality of the meat can be rated after consumption.

The average margin of error of this question is 5.70%, and 14% of the respondents could not answer the question, and the assumption to this would be that the respondents cannot relate the price of the meat to the size of the cut for the value of money.

3.4.3.11 Summary

TABLE 3.12: SUMMARY OF MEAN VALUES OF RED MEAT BUYING BEHAVIOUR

	CRITERIA	MEAN
A	TECHNICAL MEAT SPECIFICATIONS	3.09
B	INTRINSIC ATTRIBUTES	3.56
C	VISUAL STIMULUS FOR PURCHASING	4.24
D	IMPORTANT ISSUES WHEN PURCHASING MEAT	4.28
E	INFORMATION DISPLAYED	3.89
F	INTENTION OF BUYING MEAT FOR CONSUMPTION	3.23
G	HEALTH CONSCIOUS	3.84
H	CONVENIENCE	2.25
I	EATING SITUATION	3.44
J	FUTURE PURCHASE	3.99
GRAND MEAN VALUE		3.58

From the results, it is clear that there are four major aspects in consumer red meat quality perception and choice which are important to keep in mind when analysing red meat quality.

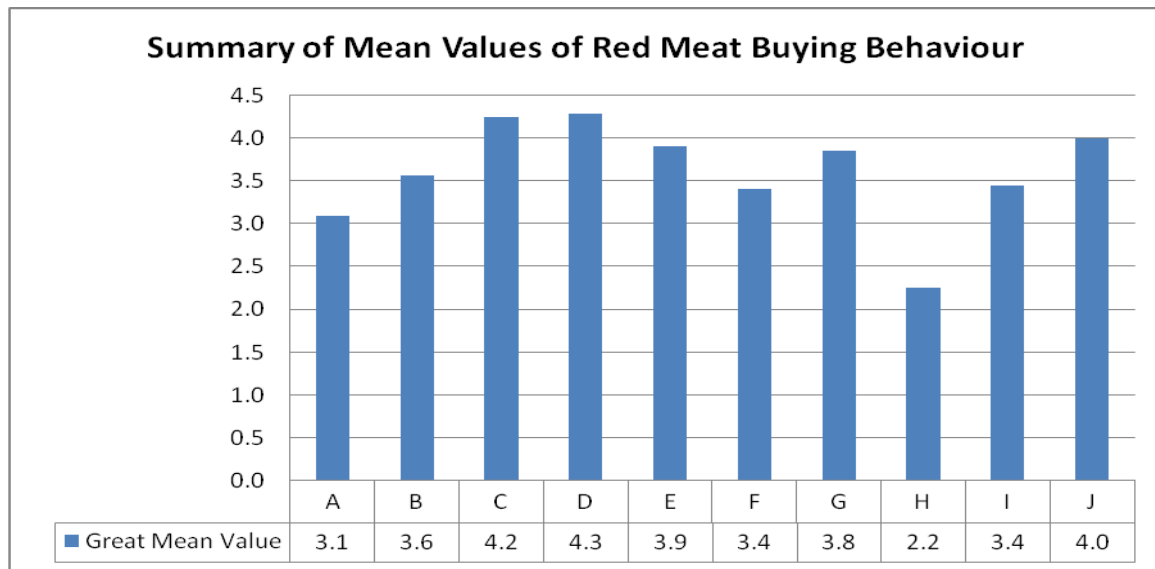
- Firstly, from the consumer's point of view, quality is subjective. The quality of the meat product is in the mind of the consumer – some aspects of the product are perceived as good and others as bad. Some, for example, good taste (freshness) leads to culinary pleasure that reinforces the purchase of meat.
- Secondly, consumers differ. Consumer point of view increasingly covers intangible dimensions. Only sensory properties of meat are really accessible to consumers. Health effects and technology used – all these are invisible, intangible aspects of meat. Consumers are not experts, and most of them will never develop the skills to evaluate all the aspects of meat quality. When they judge whether the meat is healthy or the production is natural, they use simple indicators which they know are imperfect, but which are those they understand –

visible fat and the list of additives. Consumers can be informed about individual aspects, and may learn about the importance of, for example, riboflavines, but the general principle of using simplified and imperfect rules will not change.

- Thirdly, as a consequence, quality perception is to a large extent a question of the information environment in which the quality perception takes place. Which cues are available? What is their predictive power – objectively and in the eyes of the consumer? How trustworthy is the source at hand? Different information environments for different products will lead to different quality perceptions. The same product will be perceived differently in a supermarket than in a health food shop. Adding a brand or a label may make a difference. Adding a new sponsor to an existing label may increase its impact on quality perception. And here, too, individual differences play a role – the kind of experience and expertise, and the type of quality preferred by the consumer, will influence the utilisation of the information environment, with different consequences for the perceived quality.
- Finally, there is no doubt that price is an important parameter in consumer choice, and that the trade-off between price and quality is an important aspect in consumer meat choices. But the unwillingness to pay for a certain quality does not necessarily mean a lack of interest in quality. If a consumer is not willing to pay for a specific quality, it can be due to many other reasons than lack of interest in quality:
 - The product does not, in an objective sense, have the specific quality the producer claims.
 - The consumer does not desire the specific quality (enough), that is, the consumer does not consider the quality improvement to be worth the price differential.
 - The consumer does not realise that the product has the specific quality.
 - To make things more complicated, price is also subjectively perceived. The customer's trade-off between perceived quality and price may not be based on the objective price at all, but on a price the consumer thinks the product has, based on previous experience. Price, if the consumer actually notices it in a purchase situation, may be perceived as high or low not only in relation to perceived quality, but also in relation to a subjective

reference price, which again is based on previous experience. A high price may even be regarded as positive; a sign of high quality

FIGURE 3.8: SUMMARY OF MEAN VALUES OF RED MEAT BUYING BEHAVIOUR



The above figure shows the summary of the data analysed during the study.

3.4.4 Reliability of the data

The reliability and internal consistency of the data is verified by means of Cronbach's coefficient alpha. The results appear in Figure 3.13.

TABLE 3.13: RELIABILITY

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha based on standardised Items	N of Items
1.000	0.998	45

The reliability of the data is very high, returning an Alpha value of 0.998. A reason for such high coefficients could be that the analysis discarded a high number of responses

from the initial data set (n=79, yet only 45 items were used to calculate the Alpha coefficient) of items from the calculation.

3.4.5 Identifying factors of red meat buying behaviour

In addition to the inferential statistics, the data were also subjected to a test of reliability and tests to ascertain if the data were suitable for a factor analysis. The Kaiser-Meyer-Olkin Test for sample adequacy and the Bartlett Test of Sphericity are employed to test for suitability to perform a factor analysis.

3.4.5.1 Bartlett's Test of Sphericity

Bartlett's Test of Sphericity is a test statistic used to examine the hypothesis that the variables are uncorrelated in the population. In other words, in the correlation matrix the variables correlates perfectly with itself ($r=1$) but has no correlation with the other variables ($r=0$).

The observed significance level is .0000. It is small enough to reject the hypothesis. It is concluded that the strength of the relationship among variables is strong. It is a good idea to proceed with a factor analysis because the data should yield a p-value smaller than 0.0001. This indicates that the correlation between the variables is sufficient for factor analysis (Du Plessis, 2009:58).

The factor analysis of the individual based scenarios returned three factors. Factor loadings above 0.40 are considered to be significant and used in the analyses (Statistica, 2008).

Bartlett's test is sensitive to departure from normality, that is, the sample comes from a non normal distribution; then Bartlett's test may simply be testing for non normality.

3.4.5.2 Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy

KMO measure of sampling adequacy is an index used to examine the appropriateness of factor analysis. High values (between 0.5 and 1.0) indicate factor analysis is appropriate. Values below 0.5 imply that factor analysis may not be appropriate.

Large values for the Kaiser-Meyer-Olkin (K-M-O) measure indicate that a factor analysis of the variables is a good idea. The inverse is also true as the K-M-O also supplies vital information when not to use factor analysis. For values smaller than 0.5, the factor analysis is likely to be inappropriate. A K-M-O value of 0.6 should be present before factor analysis is considered (Anon., 2010), although values between 0.5 and 0.7 are mediocre (Du Plessis, 2009:26). Values between 0.7 and 0.8 are good while the values between 0.8 and 0.9 are excellent. Values between 0.9 and 1 are superb (Field, 2007:640). The data returned values between 0.80 and 0.90, signifying a good fit for factor analysis.

In order to determine if underlying constructs or factors exist within the data set, the data are subjected to exploratory factor analysis (using a Varimax rotation). The suitability of performing factor analysis is determined by Bartlett's Test of Sphericity and the KMO measure for sampling adequacy. The results showed that regarding the Bartlett Test of Sphericity, a very low level of significance realised. This means that the data are suitable to be subjected to factor analysis. Regarding the KMO measure of sampling adequacy, the analysis showed that the sample size is adequate for factor analysis. Therefore, the data are suitable to continue to extract factors by means of exploratory factor analysis.

TABLE 3.14: THE KMO AND BARTLETT TESTS

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.890
Bartlett's Test of Sphericity	Approx. Chi-Square	10688.109
	df	990
	Sig.	.000

TABLE 3.15: FACTOR TABLE WITH FACTOR LOADINGS

F2	0.999	D4	0.998	I6	0.997
J1	0.999	I4	0.998	I5	0.997
D1	0.999	E3	0.998	G4	0.997
G6	0.999	I1	0.998	A5	0.997
D3	0.998	C3	0.998	I7	0.997
I2	0.998	F3	0.998	B3	0.996
G3	0.998	C2	0.997	A4	0.996
G2	0.998	F4	0.997	B4	0.995
E1	0.998	E2	0.997	A2	0.995
C1	0.998	A3	0.997	H3	0.995
G5	0.998	D2	0.997	J3	0.994
G1	0.998	A1	0.997	J2	0.992
B5	0.998	B1	0.997	I3	0.990
E4	0.998	H1	0.997	B6	0.998
F1	0.998	H2	0.997	B2	0.997

All the criteria load onto one factor with high factor loadings. This means that there are no underlying factors present and that the questionnaire used, measures only one construct, namely that of consumers' buying behaviour when purchasing red meat. The factor also explains a very high variance of 99.40%. Since only one factor was extracted, the rotation of the component matrix was not performed. This means that there are no underlying dimensions present in the data pertaining to the perceptions of red meat.

3.5 SUMMARY

The total mean score of the perception of red meat has been rated as 3.60, above average. The highest focus is on the visual stimulus the meat attracts on the shelf, and the highest rated quality dimension is freshness which is rated higher than price and ingredients found in the meat.

Presently, more people are more concerned about their health and what they eat. Reading the information on the meat pack is crucial to people. This translates into simple terms about the ingredients you are about to take in, placing the choice in the hands of the consumer who can refuse to purchase that particular meat. Convenience of food preparation is avoided by the majority of the respondents, and scored very low,

which means that the respondents do not compromise on the quality of the meat they eat.

The next chapter is the final chapter in this study. It draws conclusions, makes recommendations and identifies areas of future research in the red meat industry.

CHAPTER 4

CONCLUSION AND RECOMMENDATIONS

4.1 INTRODUCTION

The preceding chapter presented the results obtained from the empirical research conducted upon the framework to measure consumer perceptions on the quality of red meat at FERROMETALS.

In this chapter, conclusions and recommendations are given, based on the literature study on measuring the perception of consumers on the quality of the red meat and from the empirical study.

Evaluations were done to determine if the main objective and the sub-objectives as identified in Chapter 1 were realised. Suggestions for future research are also presented.

4.2 CONCLUSIONS

The framework to measure consumer perception on the quality of red meat has presented a very broad range of complex choices the consumer has to make which differ from one consumer to another. Conclusions have been reached towards demographics and the perception of consumers towards purchasing quality red meat and will now be discussed.

4.2.1 Demographic information

The following conclusions were reached towards the results obtained from the demographic information:

- The most respondents (72%), in the family setup, chose beef over mutton.

- The highest level of education most of the respondents have was a university degree (42%). This confirms that respondents are able to read the meat labels on the package.
- The majority of the respondents were single (53%); this would confirm the convenience of quick food preparation and what single consumers prefer.
- The convincing majority of respondents (61%) were male. There were 48 questionnaires completed by the Operations department (consist of various engineering disciplines) who are known to be more dominated by men.
- As much as 40% of the respondents were single males who buy meat at the butchery for their families. This also confirmed that the consumers prefer to buy meat at the butchery than in the grocery supermarkets.
- Some of the respondents (41%) were married women who also cook for their husbands, and only 3% of husbands do some cooking as well. This would also confirm that women take their time when preparing food ensuring tasty food using different methods of preparing red meat.
- Even though there are 53% single men as respondents, only 38% are single. The single men selected a type or cut of meat they prefer, as they are not influenced by partner or family preferences.

As indicated above, the conclusions derived from the demographic analysis were met as the focus was certainly on the male dominated industry at large that are currently in a working environment.

4.2.2 Framework to measure customer perception on the quality of red meat

4.2.2.1 Technical Meat Specifications

Verbeke (1999:8) advised that as consumers are increasingly more focused on the quality and nutritional characteristics of meat and meat products, fresh meat has been referred to as the food in which consumer confidence has decreased the most during the 90s.

The following conclusions were made from the results obtained by asking positive acts identified on a 5-point Likert scale. The scale was from 1 (strongly disagree) to 5 (strongly agree) questionnaire:

From the empirical research, respondents completed various questions from the questionnaire on technical meat specification in which consumers have selected on a 5-point Likert scale their preference on the quality of red meat on the shelf of the butcher/supermarket prior to purchasing. The research has shown that 50% of the respondents indicated that they strongly agree with the statement of considering the shelf life of the meat pack when purchasing meat. The standard deviation of the question is 1.25 which emphasises that the spread of data of the majority of the respondents is significantly normally distributed and does not differ much from the mean. Another 33% of the respondents reported that they sometimes buy the meat according to the nutritional value on the pack, and do not value much the nutritional value prior to making any purchases.

According to Dransfield (2001:74), the characteristics to determine high quality meat with high technical specifications like the age, fat code, gender or age of the carcass predominately lies on its biological background. A total of 36% of the respondents strongly agreed with the statement of wanting to know the origin of the carcass.

4.2.2.2 Intrinsic attributes

McIlveen and Buchanan (2001:286) mentioned that consumers largely perceive good quality meat by considering physical and chemical properties of the meat such as appearance, aroma and so forth.

The research has shown that an average (4.23) of 58% of the respondents strongly agreed with the statement of preferring to buy the meat from a known retailer or supplier. This could also be attributed by the fact that the consumers might also be attached to being loyal to their suppliers and knowing the quality of meat they sell. The mode of the score is consistently five (5), and the standard deviation has also been too small, showing how dispersed the data are from the mean.

According to Just Lamb (2010), certain retailers in South Africa have changed to selling boneless retail cuts. This is to ensure that the consumers can get value for their money on the cut they choose. This correlates to the findings of this study. According to the findings, 45% strongly agreed and 12% just agreed to the statement of “*Knowing which cut to buy will ensure the cost effective decision*” because of the fatness and trimming of the cut.

4.2.2.3 Visual stimulus for purchasing

However, 68% of consumers reported that they read the nutritional value on the labels. It can be concluded that the main item that consumers (96%) strongly agree to look for is the freshness date on the pack of the meat pack when purchasing meat. The order of preference the consumers exercise when buying the meat is freshness, price and lastly the ingredients.

According to Glitsch (2000:177-194), the finding he arrived at was that the price was considered least helpful while the consumer placed more confidence in freshness of the meat assessing the safety of the product.

4.2.2.4 What is considered important by consumer when purchasing meat?

Veblen (1988:129) has established six components which are important to the consumer when purchasing meat, which are convenience, price, nutrition, variety, quality and good taste.

Gorraiz et al. (2000:137) also highlighted texture/aroma (freshness dimension) and flavour as the important flavour characteristics which are important criteria used by the consumers to evaluate the sensory quality of meat.

The research has shown that 95% of FERROMETALS employees’ first priority is freshness, second priority is price at 73% strongly agreeing with the statement, the third priority being the colour of the meat at 60%, which highlights the aroma of the meat and 37% agrees with ingredients or flavour. Once again, freshness related by the consumer is now clearly being linked with the freshness date on the meat pack.

4.2.2.5 Every time I buy meat, I check the information displayed on the pack

The majority of the respondents (77%) say they look for freshness, price (60%) then fat content and nutritional value information displayed on the pack in order to have a good tenderised piece of meat. Hence the choice of meat is not only relying on a personal choice, but also because of a complex process that is influenced by a wide range of interrelating factors.

4.2.2.6 Intentions of buying meat for consumption

According to Shepherd and Sparks (1994:203), the consumer goes through various intentions or factors when buying meat, such as cultural acceptability, family income and family preference. Seventy six percent of the respondents buy meat according to what the family prefers which is also governed by the family income and size of the family; however, 50% of the respondents do not buy any cut of the meat when doing a braai; they do not compromise on the quality of the cut. Large families are very interested in cooking, look for new recipes and new ways of cooking, and involve the whole family in the cooking process.

4.2.2.7 Health consciousness

Sañudo et al. (2000:339) reported that too much visible fat discourages the consumer to buy the specific cut of meat, and that excessive fat is often removed before cooking or during the meal.

Ward et al. (1995:65) also reported that consumers are more willing to compromise taste for a product that is perceived to be healthier; therefore, nutrition, fat level and cholesterol affects meat consumption. A number of studies indicate that today health is as important as taste and that consumers are motivated by expectations of prolonging life.

Sixty four percent of the respondents strongly agreed with the statement that eating healthily can prolong life, and some 8% strongly disagreed. Fifty two percent of the

respondents prefer to buy meat from an accredited outlet, than just from the shop around the corner. Another 73% buy only when the meat pack is neatly labelled and showing the shelf life of the product.

4.2.2.8 Convenience

Gofton (1995:11-16) discovered that from a consumer's point of view, convenience is much more than just ease of purchases or quick consumption. Generally, convenience means the saving of time, physical or mental energy at one or more stages of the overall meal process. Eighty one percent of the respondents reported that they strongly disagree with the statement of buying whichever meat is available from the shelf, irrespective of the quality of the meat. Consumers only buy fresh meat with acceptable nutritional values.

Even though the large population of the respondents were single males, it was obvious that they do not like to spend time preparing the food. As such the question referring to convenience showed that the respondents are able to prepare any food quickly. The meat as consumer product is thus not adversely influenced by the time constraint of single men. Today's generation, even men, have adopted the Western lifestyle of assisting their women in the kitchen and sharing the responsibilities in the household.

4.2.2.9 Eating habits

Gorraiz *et al.* (2000:137) evaluated the main criteria used by consumers to evaluate the sensory quality of meat, such as texture, aroma and flavour characteristics, and 66% of the respondents reported that they strongly agree with the statement of being able to compare the superior and inferior meat quality after consuming the meat. This statement can be tested only after the purchasing of meat when the consumer will have the actual quality experience of the meat and compare it to the expected quality prior to purchasing the meat.

4.2.2.10 Future purchase

Eighty one percent of the respondents reported that they strongly recommend new beef consumers to a butcher that sells good quality meat, and when the owner of the butcher sells good quality s/he does not have to do hard marketing of the business; word of mouth from the customers guarantees that new beef consumers will be told about good service and the value of money.

4.3 RECOMMENDATIONS

The following recommendations will assist any interested party who wants to open a new butchery or an existing butchery owner who wants to do a survey among his customers to have an understanding of current needs of beef consumers in order to enhance his business in the area. The recommendations are:

- To include the socio-economic status of the respondents to include the income range and their age.
- For consumers, credence attributes such as food safety are associated with higher levels of perceived risks associated with the beef category due to the nature of the adverse consequence.
- For the retailers, a more focused approach to marketing beef could include strategies based upon understanding of particular aspects of perceived risk.
- For policy makers, Government initiatives designed to improve the flow of information along the beef supply chain should take account of consumers' perceptions of risk, notably the losses associated with individual physical health, which are still at the forefront of customers' perceptions.
- Developing a clear link between the importance of achieving buying goals and the level of perceived risk is particularly necessary for the retailers following an own brand strategy in general and for beef in particular.

4.4 ACHIEVEMENT OF THE STUDY'S OBJECTIVES

4.4.1 Main objective

The primary objective of this research was to analyse the customers' perception on quality and nutritional characteristics of red meat and meat products. This objective was met through the research done in the empirical study of measuring the perception of customers on the quality of and nutritional characteristics of red meat as discussed below.

4.4.2 Sub objectives

- Determine demographic characteristics, gender, education, marital status and to identify the criteria important in the buying of red meat;
- Measure the role these criteria play in the buying behaviour of red meat;
- Determine an order of importance of the identified criteria in buying behaviour; and to
- Analyse if there are any underlying dimensions present within the buying behaviour.

The typical demographic characteristics of buying habits by participants is determined and discussed in Chapter 4, section 4.2.1.

- Measuring the criteria used to purchase the meat and the order of importance of quality dimensions, are determined and discussed in Chapter 4, section 4.2.2.

4.5 SUGGESTIONS FOR FURTHER RESEARCH

As mentioned in Chapter 1, the study only focused on FERROMETALS employees and is therefore not applicable to a broader audience. There is still a considerable need for empirical studies on technological, economical and marketing issues.

Therefore, suggestions for further research include:

- Labelling and trace-ability have been announced as a potential powerful vehicle for consumer reassurance. However, in practice, large gaps exist between reality and consumer perception of labels. More effective communication pertaining to substantial and distinctive features of labelled meat is urgently required. Also, further monitoring of economic and organisational performance, as well as of the acceptance and understanding of labels and trace-ability at the consumer level are needed.
- With respect to the consumer decision-making process, future follow-up studies that link changes in consumer beliefs, perception, attitude and behaviour towards meat consumption are needed to explore future developments and result in up-to-date recommendations for the different levels and organisations involved in the meat chain; especially the impact on meat consumption of growing animal welfare and environmental consciousness at the consumer level deserve future research attention.
- Research into the impact of influencing factors that were not fully explored in the underlying research is recommended. This mainly concerns the impact of personality traits and situational factors. On an international scale, the impact on consumers of issues associated with growth hormones, trade and trade restriction require investigation.
- Apparently, possibilities to improve consumer acceptability of fresh meat are available. Research into the technological and economic feasibility of a more market- and consumer-oriented approach with product innovation and

development is requested. Scientific and applied scientific research could indicate potential pitfalls and recommend best feasible practices for reaching targets set forth.

4.6 SUMMARY

This study has presented a broad range of issues on consumer red meat quality perceptions and choice, and highlighted that red meat quality is a complex issue. Consumers have complex, vague and sometimes contradictory wishes with regard to red meat quality, which differ with all kinds of consumers.

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APPENDIX 1: QUESTIONNAIRE

Survey questionnaire on:

A framework to measure customer's perception on the quality of red meat

This survey is done to measure the intrinsic and extrinsic cues in which the consumers undergo when purchasing quality red meat. The information will be used in a mini dissertation that will be handed in to the North West University. I appreciate your time and effort spent on filling in this questionnaire. It is your opinion so there is no right and wrong answers. Your answers will be treated as confidential and will not be shared with anyone. It is however very important to know what you like and dislike when consuming beef and factors that lead you to buy beef over other meat products, especially the role of intrinsic and extrinsic quality attributes.

Definitions

- Intrinsic quality cues – cover the physical characteristics of the meat and are related to the technical specifications which include its physiological characteristics i.e. colour, flavour, form, smell and appearance.
- Extrinsic quality cues – relates to the product, but not in the physical form such as brand name, roller stamp quality, price, place of origin, production information, distribution, outlet, and packaging.

Instruction

You are required to cross only one option

Demographics information

Highest educational level?

Primary school High school University degree Technical college

What is your gender?

Male Female

What is your marital status?

Single Married Divorced Widower

Who buys the butcheries in the household?

I am Husband Wife

Who is doing the cooking?

I am Husband Wife

Who makes the choice of what meat cuts to buy?

I am Husband Wife

ur household prefers:

Beef mutton

	STATEMENTS TO BE EVALUATED	Strongly Disagree				Strongly Agree	I don't know
	BEFORE PURCHASING EVALUATION						
A	<i>Technical Meat Specifications</i>						
1	I normally buy meat according to nutritional value in the pack	1	2	3	4	5	
2	I highly consider the preservatives added to the meat	1	2	3	4	5	
3	I highly consider the shelf life of the meat pack when buying meat from the shopping centres	1	2	3	4	5	
4	I am normally looking out for the roller stamp of the carcass (differentiate grade/age of the carcass)	1	2	3	4	5	
5	I prefer readymade marinated beef	1	2	3	4	5	
B	<i>Intrinsic Attributes</i>						
1	I buy meat from the known Retailer	1	2	3	4	5	
2	I prefer buying meat from grocery store than butchery	1	2	3	4	5	
3	I prefer buying meat on R/kg than bulk	1	2	3	4	5	
4	I prefer buying meat in bulk than in R/kg	1	2	3	4	5	
5	I prefer buying meat in a neatly package from a well known supplier	1	2	3	4	5	
6	Know which cut to buy ensuring accurate cost effective decision	1	2	3	4	5	
C	<i>What Do You Look For When Purchasing Meat?</i>						
1	Freshness	1	2	3	4	5	
2	Ingredients	1	2	3	4	5	
3	Price	1	2	3	4	5	

	STATEMENTS TO BE EVALUATED	Strongly Disagree				Strongly Agree	I don't know
D	<i>What Is Important To You As A Consumer When Purchasing Meat?</i>						
1	Freshness	1	2	3	4	5	
2	Ingredients	1	2	3	4	5	
3	Price	1	2	3	4	5	
4	Colour	1	2	3	4	5	
E	<i>Every Time I Purchase Meat, I Check The Label For</i>						
1	Freshness	1	2	3	4	5	
2	Fat content	1	2	3	4	5	
3	Price	1	2	3	4	5	
4	Nutritional information	1	2	3	4	5	
F	<i>Intension To Buy For Consumption</i>						
1	I don't compromise the quality of the meat when doing a braai	1	2	3	4	5	
2	I buy meat in accordance to family preference	1	2	3	4	5	
3	I am normally avoiding to buy meat at the beginning or the end of the month or holiday seasons	1	2	3	4	5	
4	I am normally reading and evaluating meat advertisements critically and regularly	1	2	3	4	5	
G	<i>Health Conscious</i>						
1	I don't compromise the quality of the meat I buy	1	2	3	4	5	
2	I am giving myself enough time to buy meat because its quality is very important to my health	1	2	3	4	5	
3	I trust and believe that eating healthy in terms of nutritional value displayed on the meat packaging can prolong life	1	2	3	4	5	
4	I don't buy meat from unknown outlet	1	2	3	4	5	
5	I prefer buying meat from credited outlet	1	2	3	4	5	
6	I buy neatly packed meat with labelling showing shelf life	1	2	3	4	5	
H	<i>Convenience</i>						
1	I buy whichever meat is available on the shelf	1	2	3	4	5	
2	I only buy meat from shop close by	1	2	3	4	5	
3	I always buy roller stamped meat	1	2	3	4	5	

	<i>STATEMENTS TO BE EVALUATED</i>	Strongly Disagree				Strongly Agree	I don't know
	AFTER PURCHASING EVALUATION						
I	<i>Eating Situation</i>						
1	Can compare between superior and inferior meat quality after	1	2	3	4	5	
2	Packaging of raw meat is important to me	1	2	3	4	5	
3	When buying meat in bulk I set the freezer temperature according to the recommended settings	1	2	3	4	5	
4	I prefer buying known brands of meat	1	2	3	4	5	
5	I prefer knowing the origin of the meat before buying it	1	2	3	4	5	
6	I prefer to remove fat layer before eating prepared meat	1	2	3	4	5	
7	I prefer to make a quick meal	1	2	3	4	5	
J	<i>Future Purchase</i>						
1	I can recommend anyone to a butcher that serve good quality meat	1	2	3	4	5	
2	I can relate the price rate (R/kg) with the size of the cut (value for money)	1	2	3	4	5	
3	I critically analyse the meat advertisements and make purchasing decision	1	2	3	4	5	

THANK YOU FOR YOUR TIME!