Identifying consumer buying preferences of beef in South Africa

P L Uys
12273384

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Supervisor: Prof CA Bisschoff

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ABSTRACT

This study investigated the factors which influence consumers' buying behaviour with regard to beef. A tried and tested questionnaire was adapted to determine which factors influence consumers when they purchase beef products. The study collected data by means of a questionnaire to evaluate consumer behaviour when purchasing beef. Exploratory factor analysis was employed to analyse the data while Cronbach alpha was used to calculate the reliability coefficients. High levels of reliability were recorded. The analysis identified eight factors that influence the buying behaviour of consumers when they purchase beef products. These factors were *Quality of the meat, Buying preference, Farming practices, Intention to buy, Health, Convenience, Eating situation* and *Future purchase*. In addition, correlational analysis indicates that additional important attributes to buying behaviour are *Supplier characteristics* and *Packaging.*

The study culminates in a Beef Purchasing Framework that was developed as a frame of reference for beef (and possibly other meat products) buying behaviour analysis whilst it also provides a frame of reference for marketers to better understand their customers' behaviour when they are selling beef products. As a result it is recommended that retailers focus their actions on the more important beef purchasing factors and that the study be repeated on a larger scale so that the results of the present study can either be confirmed or further refined.

Key terms: beef cattle, buying behaviour, consumer preferences of beef, packaging, farming practices, factor analysis.

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CHAPTER 1 NATURE AND SCOPE OF THE STUDY

1.1 INTRODUCTION

Historically South Africa's agricultural activities have been the backbone of the economy and growth. However, only after the discovery of our country's rich mineral resources in the second half of the nineteenth century, the agricultural industry transformed from self-sustaining farming activities to a food supply, market orientated industry. This changing role of agriculture was rooted in the necessity to feed mineworkers and the subsequent larger and condensed population in the mining cities and towns (Laubscher & Kotze, 1984:30).

Olivier (2004:23) states that South Africa covers an area of 122.3 million hectares; approximately 13% can be used for crop production while the rest of the agricultural land is mainly suitable for grazing. This statement is confirmed by Dr PWA Mulder in his opening address of Agri SA's Agriculture/Mining Conference in 2013 (Mulder, 2013:2). The country's climate is ideally suited for livestock farming, and resultantly livestock is the most viable agricultural activity in large parts of the country. Olivier (2004:23) also states that almost 70% of the country's land surface is suitable to raising livestock, especially cattle, pigs, sheep and goats. The table below indicates the portion of the total land surface that is suitable for farming and grazing within the nine provinces.

Table 1-1: Land utilisation in various provinces in South Africa.

Province	Total Area (ha)	% Farm Land	% Grazing
Western Cape	12,938,600	89,3	70,4
Northern Cape	36,338,900	81,3	80,1
Free State	12,943,700	90,9	58,2
Eastern Cape	17,061,600	86,8	80,0
Kwazulu-Natal	9,148,100	71,4	58,3
Mpumalanga	8,181,600	60,9	39,6
Limpopo	11,960,600	88,2	74,0
Gauteng	1,876,600	44,2	20,8
North West	11,871,000	85,1	56,8
Total	**122,320,100**		

Source: Olivier (2004:24)

From this table it is clear that cattle farming is more suitable for the land surface than any other farming enterprise, hence Olivier (2004:23) concludes that animal production is a major source of agricultural income for the South African farming community and the agricultural industry.

Considering the agricultural sub-sectors, the red meat industry is one of the most important agricultural activities in South Africa In this regard Meissner *et al.* (2013:282) confirm the importance of the livestock industry by stating that "livestock production in South Africa is a significant contributor to food security and clothing, and provides many social and economic attributes to the country" in addition, the industry has always been a major employer employing 245 000 employees, 1,45 million dependents and wages amounting to R6 100 million (Meissner *et al.*, 2013:282). These researchers further state that livestock farming is crucial to the socio-economy and contributes largely to the sustainability of most non-metropolitan towns and rural communities.

Cattle farming form an integral part of the economy and culture of all South African farmers and most farms are well-suited to facilitate cattle as a complementary part of farming activities. (Bisschoff & Lotriet, 2013:40). This includes traditional crop producing areas where cattle supplements the crops by feeding, for example, off harvested fields. In the 2012/2013 financial year agriculture contributed to around 2% of the South African GDP (DAFF, 2014b:v) while cattle and calves contributed 12% to the agricultural GDP (RPO, 2014). The industry thus plays an unmistakably large role in the country's economy and has an important multiplier effect by creating jobs throughout the industry starting from the actual farming activities through to secondary processing facilities all to place a meal on the table of the consumer (Bisschoff & Lotriet, 2013:41). Loubser (2013:6) quotes that the research by Van Vuuren as published by the company Market Surveys and Statistical analysis (MSSA) on the demography of livestock farmers in South Africa (MSSA in Loubser, 2013:6). In this research MSSA surveyed livestock farmers farming in South Africa. Their statistics show that there are 43000 commercial farmers in South Africa, most of them farm in the Free State (18%), Western Cape (17%) and the Northern Cape (14%).

Beef cattle farmers comprise the highest total of livestock farmers in the country with 32.2%. Beef cattle farming are also the most popular secondary farming activity. Some 28% of farmers farm with beef cattle as a secondary activity on top of their primary activity. Beef cattle farming is the first choice secondary farming activity for summer grain farmers, pig farmers, poultry farmers and milk farmers. When total turnover is taken into account, 36% of beef cattle farmers fall in the category R100 000.00 to R500 000.00 turnover while only 6.5% earn a turnover of more than R5 million per annum. Loubser (2013:6) states that a possible reason for the low

turnover might be due to the fact that 26.4% of the beef cattle farmers indicated that only 10 to 50% of their income is from agriculture. Only 10% of beef cattle farmers are involved in exports. This might be a good future opportunity for cattle farmers as reverberated by the Chairman of the Red Meat Producers Organisation (RPO) in his Chairman's Report at the organisation's 2014 congress (Van Zyl, 2014:1). The research done by MSSA continues by stating that 76.5% of beef cattle farmers in their sample owned computers. These were mainly used for communication (e-mails), VAT and other business purposes. Beef cattle farmers were the second oldest age group behind game farmers with 36% of them older than 65 years and 81.6% were Afrikaans speaking. Only 5.8% of beef cattle farmers were younger than 35 years though most female farmers (4.3%) are found in the beef cattle industry (MSSA in Loubser, 2014:7).

There is strong competition in the meat industry and therefore it is critical for each breed of cattle to establish itself as a trademark by making use of a proper marketing strategy (Smit, 2010:2). In this regard Pentz (2009:1) stated that in this cattle and calves industry the farmers are spoilt for choice between indigenous and imported breeds as well as specific breeds within these categories. In South Africa no single breed dominates the market, although the Bonsmara currently has the biggest market share in beef cattle (Bisschoff & Lotriet, 2013:41). The breeders association of each cattle breed is thus tasked with the mission to ensure demand for their breed from farmers (both stud breeders and commercial), feedlots, abattoirs and the consumers (Anon., 2014a, Anon., 2014b; Anon., 2014c Anon., 2014d Anon., 2014e & Anon., 2014f). By comparing the marketing strategy of different breeds of beef cattle in the South African market the study will aim to determine what variables constitutes to an effective marketing strategy for a beef cattle breed in South Africa.

1.2 PROBLEM STATEMENT

The black middle class consumer is expanding rapidly in South Africa and especially created a strong demand for beef for consumers (Smit, 2010:41). Philip (2015) states that the black middle class increased from 1.7 million in 2004 to 4.2 million in 2013. This growth of the middle class coupled by the interest of the Australian market in South Africa's indigenous cattle breeds has led to a possible window of market opportunity (Bisschoff & Lotriet, 2013:48) that can be captured by breeders' associations in an effort to establish their breed as dominant and increase their market share. In order to achieve this an inclusive and well-designed marketing strategy targeted at the appropriate market should be designed and implemented.

Pentz (2009:34) states that the Bonsmara (which is a South African adapted breed possessing excellent crossbreed characteristics amongst its bulls) and the Aberdeen Angus (with its premium beef qualities) breeds are quickly closing this mentioned window by successful marketing efforts. However, the indigenous medium frame cattle breed, according to Smit (2010:37), is the Drakensberger which is popular in the Eastern parts of South Africa whilst also sought after in Australia because of its excellent meat marbling qualities.

This study aims to investigate the buying behaviour of beef (taking into consideration the different beef cattle breeds) in South Africa. The aims is thus to determine how South African consumers purchase their beef. This can be achieved by making use of secondary objectives that define and describe purchasing behavior through different factors relating to the decisions taken by the consumer when they actually purchase a beef product.

Once these objectives have been addressed the research can move on to the primary and secondary objectives. The primary goal of the research thus aims to determine what decisions consumers currently base their beef purchasing behaviours on.

Secondary objectives determine the factors deemed as important by consumers in their decision to purchase beef.

In order to address both the objectives and goals quantitative research were used. Quantitative research was used by setting up a questionnaire (previously used by Malindi & Bisschoff and adapted for the present study) on different decisions taken by consumers when purchasing beef products.

1.3 OBJECTIVES

1.3.1 Primary objective

The primary objective of this research was to analyse the behaviour of the South African beef consumer.

1.3.2 Secondary objectives

Secondary objectives were to:

- Identify what factors consumers regard as important when buying beef;
- Compile a demographic profile of the buyers of beef in this study;
- Determine if there were differences between the buying behaviours of the different demographic profiles of the beef buyers;

- Determine if the data was reliable, hence suitable to employ in analyses; and to
- Understand the importance of beef buying behavioural factors of the South African consumer.

1.4 RESEARCH METHODOLOGY

1.4.1 Literature study

A complete literature study regarding the livestock industry as well as the beef industry of South Africa was executed. A history of the different beef cattle breeds in South Africa, their unique characteristics and popularity amongst farmers were established. In addition, the characteristics and marketing literature pertaining to beef were also studied. The library of the North-West University provided access to a magnitude of data bases, studies and scientific journals in addition to advanced software to locate relevant information, whilst the Internet and the qualitative research also supplied valuable information and leads to follow.

1.4.2 Empirical study

An empirical study was conducted to gain insight into the purchasing behaviour of beef consumers.This was achieved by studying the buying behaviour (analysing the demand side of the beef consumers) by means of a questionnaire.

The data was collected by means of a tried and tested structured questionnaire that was developed to measure beef purchasing behaviour of consumers. The questionnaire, developed by Malindi (2010), uses a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The questionnaire appears in Annexure A. Regarding data collection, a convenience sample was employed and the researcher, with assistance of friends and family, targeted random consumers to report on their beef purchasing behaviour.

The questionnaires were distributed in hard copy format by hand to random consumers in shopping malls, butcheries and various office buildings in the Gauteng province. Consumers were requested to complete the questionnaires on the spot and hand them back. A total of 170 questionnaires were distributed. A total of 159 (93,5%) fully completed questionnaires were received back.

The data capturing services of the North-West University's Statistical Consultation Services were employed to capture the data where after a statistical analyst from the university advised and analysed the data professionally. The statistical software "Statistical Package for the Social Sciences" (SPSS) 2015 version 22 was employed to perform the analysis.

1.5 LIMITATIONS OF THE STUDY

The findings of this study pertain to the views of the consumers in the sample group that participated in the study and may vary from other studies where the compilation of the group respondents differs.

1.6 LAYOUT OF THE STUDY

The study has a standard research layout consisting of four chapters and the applicable appendices. The study structure is as follows:

Chapter 1 - Introduction, research proposal and study overview

The rationale for the study and the method followed in the study to address some problem statements are discussed.

Chapter 2 - Cattle Farming

The results of a literature survey on beef cattle farming, consumer behaviour with regards to red meat consumption, agricultural and economical information with regards to South Africa and marketing strategies for beef cattle types are presented.

Chapter 3 - Research methodology and results

The approach to questionnaire design, sample identification and data gathering is described. The results gathered from the questionnaire are described and summarised in graphical format.

Chapter 4 - Conclusions and recommendations

Conclusions are drawn from the results in the chapter and some recommendations are made from the author's perspective.

A copy of the questionnaire presented to respondents, is included in Appendix 1.

1.7 SUMMARY

Chapter 1 provided an introduction with background and history of the livestock industry of South Africa with specific reference to beef cattle farming in this industry. The marketing problematic of beef cattle were presented and the study's objectives were formulated. This chapter also supplied a structural layout of the study.

The next chapter consists of the literature study pertaining to the marketing of beef cattle in South Africa.

CHAPTER 2 CATTLE FARMING IN SOUTH AFRICA

2.1 INTRODUCTION

Livestock production in South Africa significantly contributes to food security, clothing and provides numerous social and economic benefits to the country (Meissner *et al.*, 2013:282; DAFF, 2006:xvi). Livestock are produced across South Africa with numbers and species varying according to grazing capacity of the land, environment and production systems. Productions systems refer to commercial, small-scale or communal farms. Intensive production systems (feedlots, poultry, and pigs) are also found across the country depending on choices with regards to optimal land use and vertical integration. These intensive production systems tend to be situated close to metropolitan areas and feed suppliers. An estimated 38 500 commercial and intensive units and about 2 million small-scale/communal farmers are involved with livestock farming in South Africa. The numbers and distribution across provinces according to 2010 estimates are provided for ruminants livestock numbers (Table 2-1) (DAFF, 2014c:2).

Table 2-1: Estimated ruminant livestock numbers in South Africa (August 2013 and February 2014) (in thousands)

Province	Cattle		Sheep		Pigs		Goats	
	Aug-13	Feb-14	Aug-13	Feb-14	Aug-13	Feb-14	Aug-13	Feb-14
	Thousands							
Western Cape	575	556	2 924	2 770	173	175	222	220
Northern Cape	498	511	6 188	5 944	27	27	515	512
Free State	2 298	2 302	4 822	4 736	126	126	242	242
Eastern Cape	3 284	3 320	7 026	7 067	96	93	2 263	2 288
KwaZulu-Natal	2 726	2 757	757	761	156	155	819	810
Mpumalanga	1 453	1 433	1 772	1 762	128	124	91	89
Limpopo	1 067	1 062	264	251	368	371	1 134	1 115
Gauteng	255	256	102	96	181	176	40	41
North West	1 706	1 699	673	661	319	323	702	705
Total	**13 862**	**13 896**	**24 528**	**24 048**	**1 574**	**1 570**	**6 028**	**6 022**

Source: DAFF, 2014c:2

The global demand for livestock foods, mainly meat, continues to increase. This is a result of growth in world population, affluence in developing countries and thus associated shift in consumption of livestock products. In South Africa the middle class population has increased dramatically over the last 10 years (see figure 2.4) (Du Preez, 2015) with related growth in demand for livestock foods (Labuschagne *et al.,* 2011:4; 73). An increase in demand for white and red meats supports these arguments, although price sensitivity has had an effect on

demand for red meat. Livestock foods on a weight basis, contributed 27% of the consumer food basket in 2010, with red and white meat contributing 13%. The main items are grains (33%), reflecting mainly maize meal and bread, whereas vegetables are also significant (19%). Overall demand for livestock foods is predicted to increase (Meissner *et al.,* 2013:287).

The livestock industry's contribution to GDP and trade in South Africa contributes to R47 237 million; that is 47.4% of the combined value of field crops, horticulture and livestock production for 2005-2010 of R99 715 million. "Value adding to gross farm income amounts to 49% and if all backward linkages (farm machinery, livestock feed, fertilizer, pesticides, other remedies) and forward linkages (the much larger food industry) are taken into account the contribution of agriculture to total GDP and economic activity becomes significant." (NDP, 2009:197). This contributes to job creation benefits since the agricultural sector is the second largest employment multiplier per rand invested in the economy (DAFF, 2006:4).

The livestock sector has always been a major employer in South Africa. Estimates for the red meat industry have been 500 000 employees and 2 125 000 dependents (DAFF, 2006:xvi). These estimates are based on the assumption that there are 50 000 commercial farmers (Meissner *et al.*, 2013:282). However, in reality the number of commercial farmers has been decreasing steadily since 1994 (from about 58 000 commercial farming units in 1997 to under 40 000 in 2011, Mercury, 2011) due to several reasons such as unfavourable economic conditions, reductions in intensive livestock management systems (such as protection from environmental extremes and predators, and better nutritional and health management), conversion of large areas of rangeland to wildlife production and eco-tourism, livestock theft and increased labour costs. These figures, on the other hand, do not take into account the notable figures of the poultry and game industries. Towns in non-metropolitan areas came into being largely because of commercial farming activities. Since about 80% of all agricultural land is suitable for only livestock farming, and this figure remained unchanged the past number of years. (DAFF, 2006:2; DAFF, 2012:3), a majority of economies in peri-urban areas and rural towns are dependent on money spent by commercial and communal/small-scale livestock farmers in the area (Meissner *et al.*, 2013:292).

Livestock producers globally have undergone great volatility and uncertainty with regards to profitability in recent years. In the last decade feeding costs more than doubled and the FAO meat price index increased 90% in global meat prices. Meat prices reached a record level in 2013 and a decline in feed costs has set the scene for renewed profitability in the industry. The demand for meat products remains firm largely due to emerging regions which have rapid income growth and increased populations in urban areas. In contrast demand in developed countries stagnated (BFAP, 2014:53). The OECD outlook presents a number of reasons for

the restrained supply response which led to higher prices; the most relevant one with regards to the South African market being continuous tighter sanitary and environmental regulations, as well as sustained high costs and unreliable supply of energy, water and labour. The OECD also predicts a continued expansion of global meat consumption in the next decade with poultry (cheapest, most accessible, and free from cultural barriers) leading the way. Poultry are projected to account for approximately 50% of the additional meat consumed through the next decade, followed by pork (29%), beef (16%) and sheep (6%) (BFAP, 2014:53). Increased profitability has encouraged a phase of herd building in the beef industry that will support higher beef prices in the short term but as production expands beef prices are expected to ease from 2017. Higher beef prices will support the demand for poultry. Because of higher supply especially from the United States pork prices are expected to continue its downward trend until 2017 before recovering towards 2020 keeping in mind that prolonged disease outbreaks in the industry might increase prices dramatically in the short run. After the rapid decline from record prices in 2011 lamb prices have recovered well and are increasing steadily mainly due to the import demands from Asia and the EU (European Union) (BFAP, 2014:54).

South African livestock markets have been plagued by the same volatility and uncertainty as the international markets. Although a degree of substitutability between different meat products, different production systems and fundamental differences in equilibrium pricing conditions leads to continuous changes in meat prices. While 2013 marked a return to profitability in the global markets beef producers South Africa and its neighbouring countries did not benefit significantly. This was ascribed to severe drought conditions in addition to significant depreciation in the local exchange rates. Continued growth in meat consumptions is projected for the South African market over the next decade, however, numerous macroeconomic factors influencing the industry are expected to lead to higher meat prices leading to slower consumption relative to the past decade. Although income growth remains a key driver of increased meat consumption (Labuschagne *et al.*, 2011:73), prices and consumer preferences determine the choice between meat types. In South Africa chicken remains the most affordable source of protein. Consumption is projected to increase by 34% over the next 10 years. Chicken will continue to dominate the market accounting for 73% of additional meat consumed by 2023 (BFAP, 2014:55-60). Pork consumption is predicted to grow the fastest over the next decade with an expansion of 41% although this percentage in expansion accounts for only 10% of additional meat consumed by 2023. The demand for beef is projected to increase by 20% in the same period accounting for 15% of additional meat consumed by 2023. Lamb/mutton is the most expensive meat alternative. This means that it is typically consumed by high income consumers who spend a small share of their total income on food. Their response to higher prices is thus less sensitive. Taking this in to consideration

mutton (the estimated number of sheep in South Africa is currently 28,8 million) is expected to expand by 15% by 2023 (BFAP, 2014:55-60).

2.2 CATTLE/BEEF INDUSTRY IN SOUTH AFRICA

The value of the beef industry in South Africa is R1,67 billion. The supply chain is an extended one with numerous links between the farmer and the end consumer. Owners of feedlots buy calves from so-called “cow-calf” farmers at auctions when these calves are about six to eight months old. The feedlots then put these calves on a feeding program to add weight to the carcass and depending on the animal sell them to abattoirs after 100 to 120 days in the feedlot. The abattoirs will then slaughter the animals and sell the carcasses to numerous whole-sale outlets. These outlets then process the carcasses and put the cuts on their shelves and from there the end consumer purchases their desired beef cuts (Ncwadi, 2015).

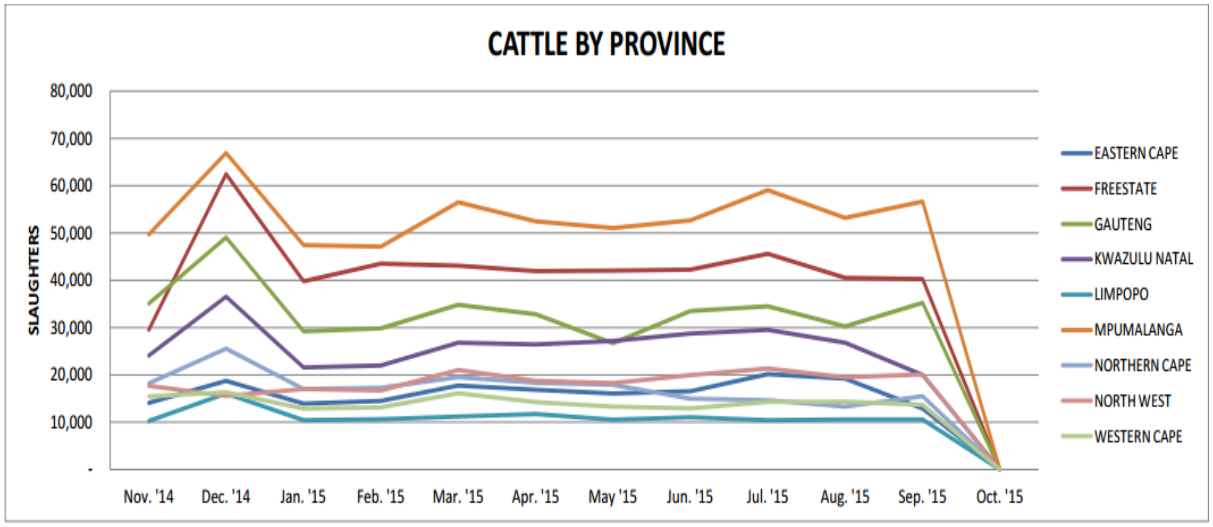
In South Africa, stock farming is the only viable agricultural activity in large parts of the country (DAFF, 2012:3). Cattle production has increased by 2% (238 000 heads) from 13.6 million in 2002/3 to 13.8 million in 2012 (DAFF, 2014a:3). Areas for grazing declined due to numerous reasons such as expanding human settlement, mining, crops, forestry and conservation. Totalling the cattle heads, 80% are beef and 20% are dairy cattle. Beef cattle producers vary from highly sophisticated commercial to communal subsistence producers (DAFF, 2014a:3). Three mayor groups of beef cattle farmers co-exist in South Africa:

- Commercial beef producers (mostly white farmers). These farms have high production and compares to developed countries. Production is based on synthetic breeds and or crossbreeding, using Indicus / Sanga (refer to table 2.2 for explanation of Indicus and Sanga types of cattle).
- The emerging black beef cattle farmer who own or lease land. Their cattle generally consist of indigenous crossbred or exotic types of cattle.
- Communal beef cattle farmers who farm on communal grazing land. Their cattle are mostly of indigenous types.

Emerging farmers own 240 000 beef cattle while communal farmers own another 3 million (DAFF, 2014a:3). There are approximately 70 feedlots in South Africa and 495 abattoirs. The beef industry is a major employer with 500 000 people employed and 2 125 000 dependent on the livestock industry for their livelihood. Commercial farmers own 60% of the 14.1 million head of cattle available in South Africa while 40% are owned by emerging and communal farmers (DAFF, 2014a:3).

Beef is produced throughout South Africa. Infrastructure such as feedlots and abattoirs determine the amount of beef produced and not necessarily the amount of cattle in that specific area. Highly developed transport infrastructure in the country contributes to the ease of moving cattle and calves from one province to another and even from neighbouring countries such as Namibia. For these mentioned reasons Mpumalanga commands the greatest share of beef production accounting for 22% of beef produced followed by Free State (20%), Gauteng (14%), KwaZulu-Natal (11%) and North West (8%) (DAFF, 2014a:4).

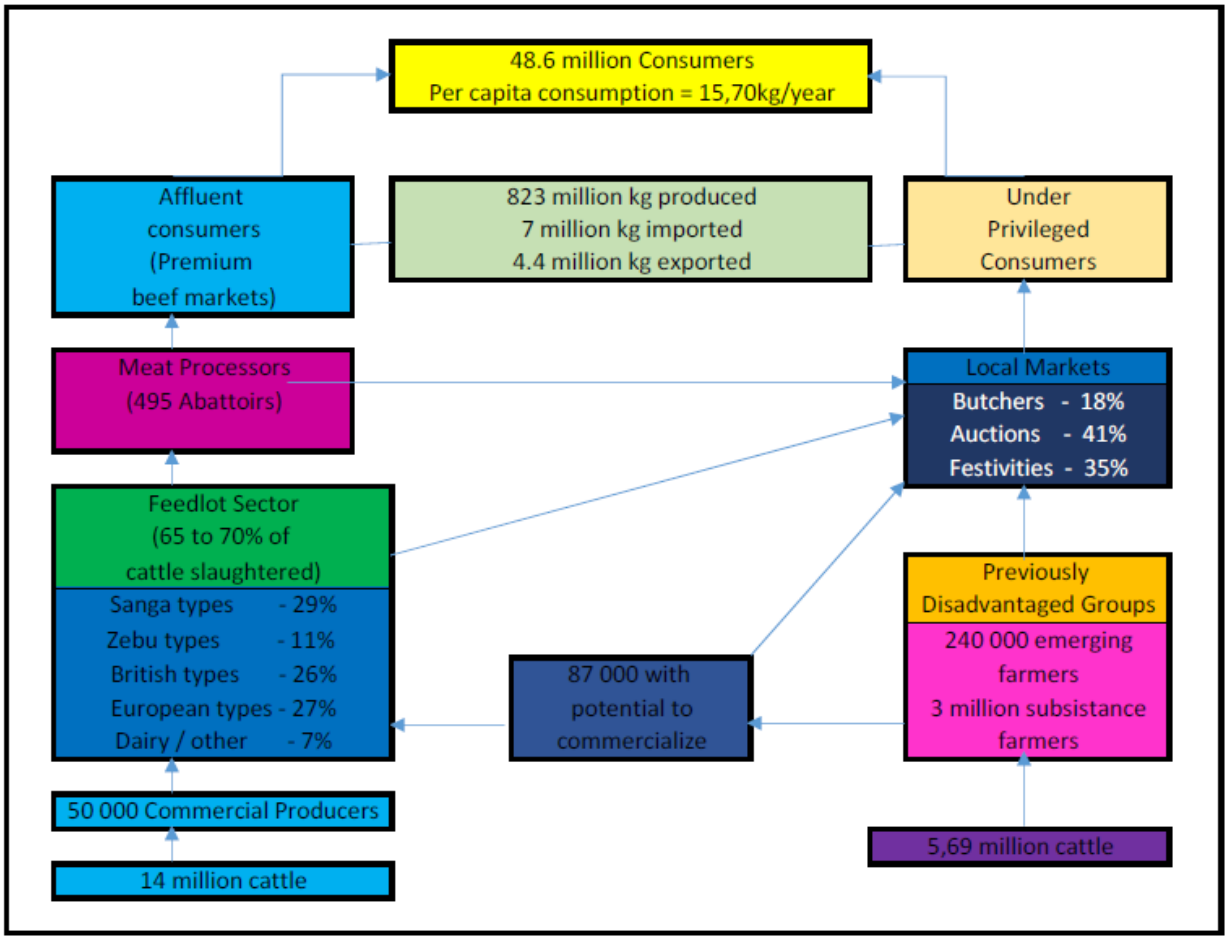
Figure 2-1: Beef production per province (November 2014 – October 2015)



Source: Red Meat Levy, 2015

South Africa has approximately 495 abattoirs. Class A abattoirs (may slaughter an unlimited number of animals) contribute to 40% of all slaughtering done while Class A & B (highly regulated) abattoirs slaughter approximately 60%. Most of these abattoirs have linkages with feedlots. Over the past ten years the number of cattle slaughtered increased significantly by 15% leading to an increase of beef production of 43%. This increase may be due to an increase in demand (DAFF, 2012:4).

Figure 2-2: The South African Beef Market Value Chain



Source: DAFF, 2012

In South Africa the demand for beef products has fluctuated since 2008. This resulted due to reasons such as an unstable economic environment, farming conditions and constant shifts in relative meat prices. Simultaneously adverse weather conditions in South Africa and neighbouring countries governed beef supply resulting in a mainly volatile market (BFAP, 2014:54). There was a massive influx of live cattle imports in 2013 when compared to 2012. This is evident from the fact that 200 000 more animals were slaughtered in 2013 than 2012, resulting in reduced beef prices. Higher slaughter numbers in the first quarter of 2014, coupled with less live imports and reduced herd numbers in South Africa support the rebound in price levels. Calf prices fell sharply in 2012 in reaction to high feed costs and high levels of live animal imports. This tendency was carried over to 2013. Reduced feed costs and the effect of smaller herd numbers in South Africa in 2014 will significantly increase calf prices from 2014 onwards (BFAP, 2014:55).

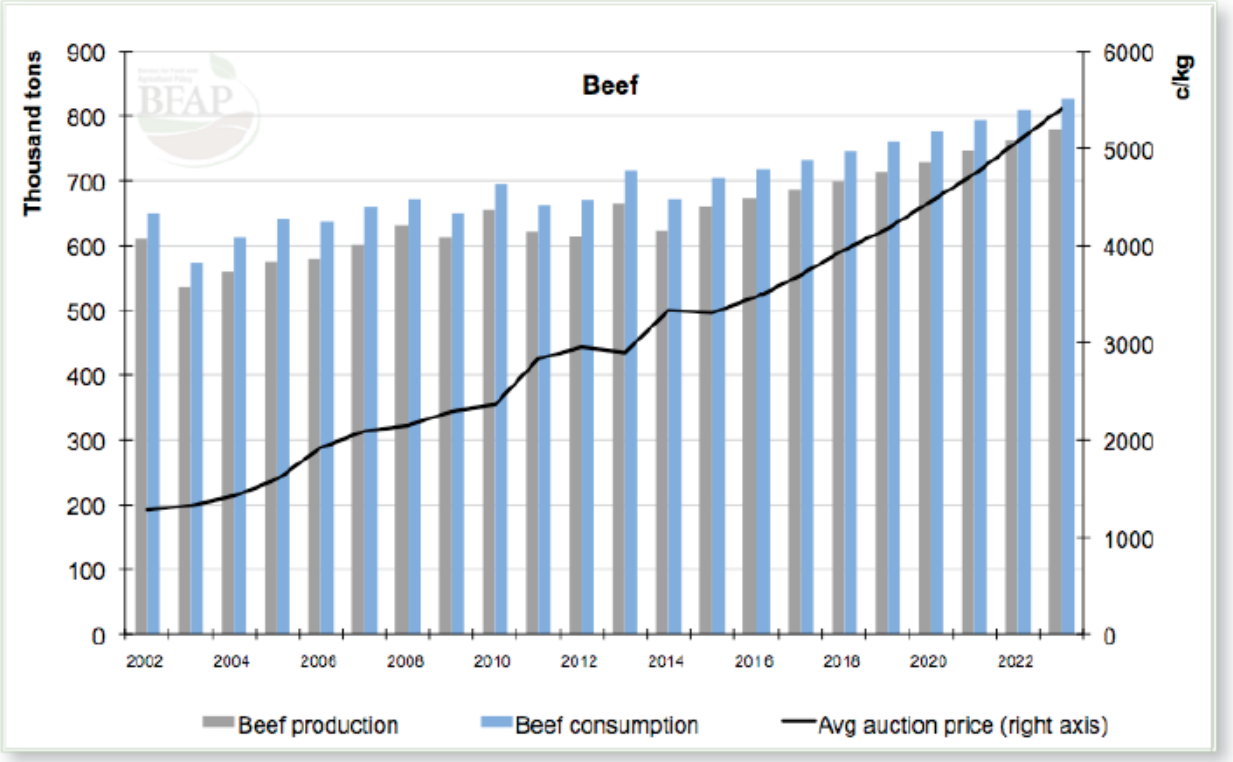
Income from animal products increased by 12.9% for the year ended 31 December 2014. Producers earned R24 938 million from slaughtered cattle and calves, compared to the

previous year's R21 052 million. (Signifying an increase of 18.5%.) Prices of animal products, with regard to slaughtered stock, increased by 12.9%, while the prices for farming requisites increased by 6.2%. These include price increases of 11.6% for tractors, 9.3% for fuel, 6.7% for trucks, 6.1% each for animal health and crop protection, feeds and fencing material, 6.0% for packaging material, 5.5% for building material, 4.8% for seeds, 4.7% for maintenance and repairs and 3.0% for fertilisers (DAFF, 2014b:3).

While feed prices influence profitability in all livestock sectors, beef production shows greater flexibility. Beef price levels are thus influenced less by high feed cost though supply shows volatility due to weaker profit margins for feedlots. Supply is however volatile with regards to extreme weather conditions which can lead to unexpected changes in herd numbers. Stock reduction resulted during 2013, where after profitability in the next decade is expected to increase, hence stimulating a supply response to satisfy local demand. This increased domestic supply is expected to lead to a marginal decline in beef imports. Higher cattle prices stimulate herd building, which ultimately would result in future periods of greater supply and lower real beef prices. Following this cyclical trend, beef prices have recovered in the first quarter of 2014 (after the severe drought of the past two years) trading at 20% higher compared to the same period in 2013. Supported by firm demand and rising prices in competing industries, beef prices are projected to increase continuously through the next decade. Average annual growth of 6.4% is projected to be sufficient to outpace general inflation resulting in marginal increases in real beef prices until 2023 (BFAP, 2014:58).

Figure 2.3 indicates South Africa's beef production, consumption and price patterns since 2002. This figure also underpins the demand the local demand projections for the next decade.

Figure 2-3 SA beef production, consumption and price



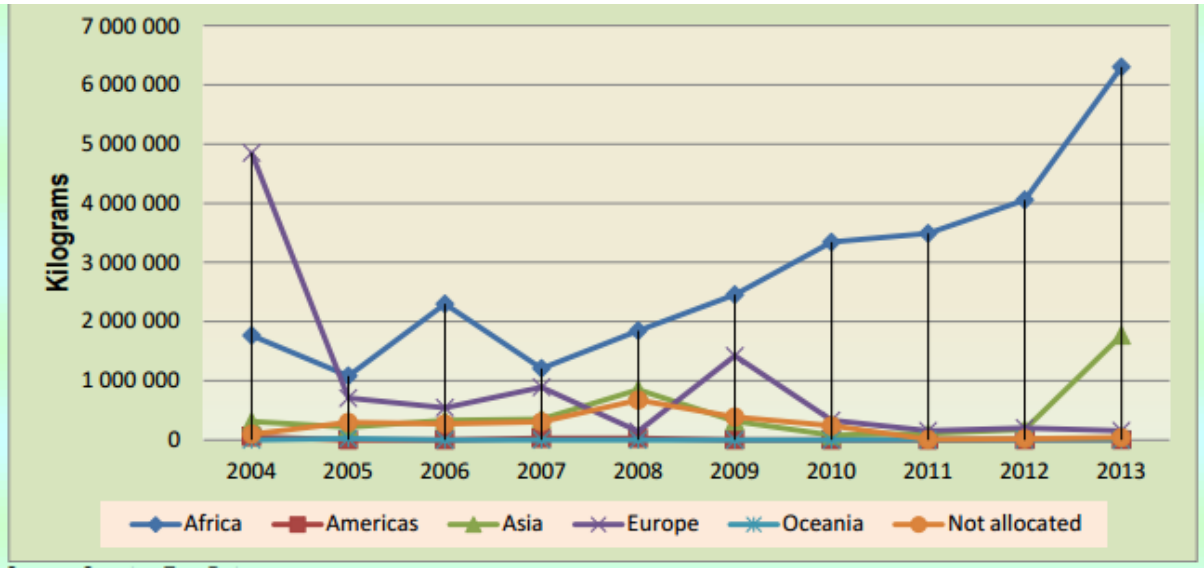
Source: BFAP, 2014:59

2.3 IMPORTS AND EXPORTS OF SOUTH AFRICAN BEEF AND AN ECONOMIC OVERVIEW OF THE AGRICULTURAL SECTOR IN SOUTH AFRICA

The downgrading of the United States of America's credit rating after the economic downturn in 2008 had a collapsing effect on all global markets. No more was this evident than in Europe where Greece, Ireland, Portugal, Spain and Italy faced economic collapse with global stock exchange losses amounting to $3 trillion (DAFF, 2014a:5).

This global economic crisis also had a negative effect on the South African agriculture sector. One of the biggest problems was the slowdown in agricultural product exports, especially to Europe (DAFF, 2012:8), that South Africa is still recovering from. Figure 2.4 indicates South Africa's beef exports from 2004 – 2013.

Figure 2-4 SA beef export to other continents



Source: DAFF, 2014c:9

This in turn limited the number of jobs created in the South African agricultural industry. Agricultural commodity markets have experienced increased volatility as the balance between supply and demand tensed.

The demand for food over the next decade will grow consistently mainly due to population growth (Meissner *et al.,* 2013:286). In real terms world commodity prices will remain stagnant although the plateau prices will be at a higher level than in the previous period from 2000-2010. Higher prices are supported by increase in demand and the constraints with regards to resources to produce (such as land and water). The cost of producing sustainably on a globally competitive basis is rising sharply as production has to expand beyond the traditionally well-developed production areas. Increasing job losses in the sector are a major concern. Average declines of between 4% and 5% per quarter are recorded leaving total employment in the industry at 624 000 jobs (DAFF, 2012:6). By improving competitiveness in the commercial sector and supporting smallholders to become commercially viable this challenge can be overcome (DAFF, 2012:5).

Gross farming income from agricultural products for the year ended 31 December 2014 is estimated at R215 135 million; an increase of 13.2% when compared to the previous year. Gross income from field crops increased by 12.9% which amounted to R55 239 million, horticultural products rose by 14.0% amounting to R57 926 million and income from animal products increased by 12.9% which amounted to R101 970 million. These numbers reflect

that income from animal products contributes the most to the overall gross income of the agriculture industry in South Africa. Prices received by farmers on average increased by 7.7%, while prices paid by farmers for farming fundamentals rose by 6.2%, resulting in the strengthening of the terms of trade from 1.00 to 1.02 during the period under review (DAFF, 2014b:1).

2.4 CLASSIFICATION OF SOUTH AFRICAN 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 (Samic, 2015).

2.4.1 Meat traders

Malindi (2010:19) states that 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 (South Africa, 2000):

- 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 species that is slaughtered.
- Every abattoir owner must comply with regulations as determined by legislation.
- Every abattoir must comply with the Meat Safety Act (No. 40 of 2000).

2.4.2 Age

Meat classification is strictly adhered to according to specific characteristics. These characteristics, as described by SAMIC (2015), are:

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 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.

2.4.3 Fatness

Fat classification of carcasses is indicated by the following codes:

000 **no visible** fat on carcass

111 **very lean** carcass

222 **lean** carcass

333 **medium** fat carcass

444 **fat** carcass

555 **over-fat** carcass

666 **excessively fat** carcass

2.4.4 Other characteristics

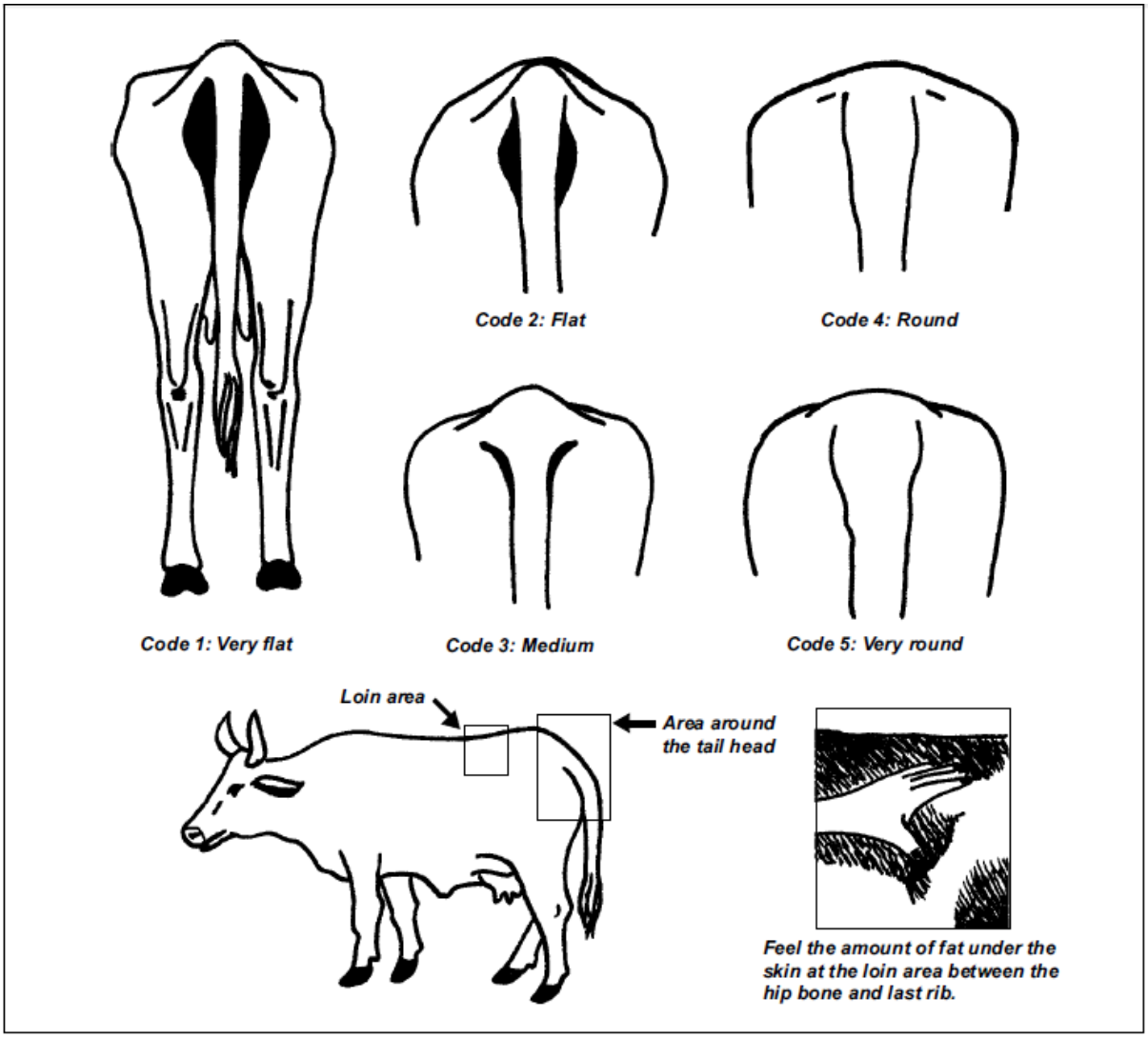
Although the meat classification system contains five characteristics, especially the age and fatness are the two most important purchasing characteristics. The other three characteristics are discussed shortly to give more information.

- **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 although these are not indicated on the carcass by roller stamp; they are defined in the following manner (refer to figure 2.5 below):

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

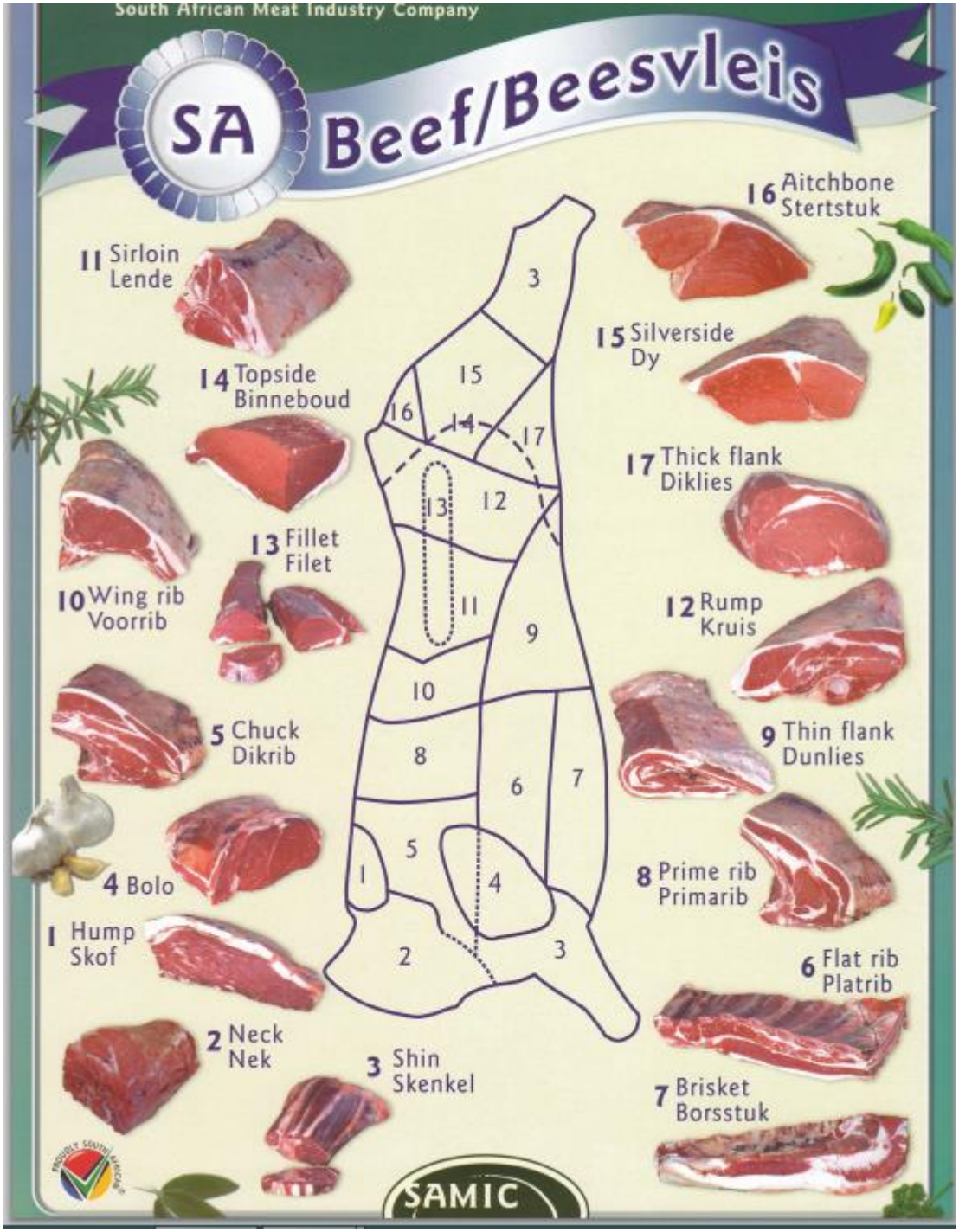
Figure 2-5 Estimating the fatness of cattle



Source: NDA, 2015:8

Figure 2.6 shows the different cuts of beef as is customary in South Africa.

Figure 2-6 The cuts in a beef carcass



Source: SAMIC, 2015

- **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 (sheep), a kapater (goat) or an ox showing signs of late castration in the AB-, B- and 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.

Roller marks as indicated above assists the consumer to purchase according to their choice and preferences. 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.

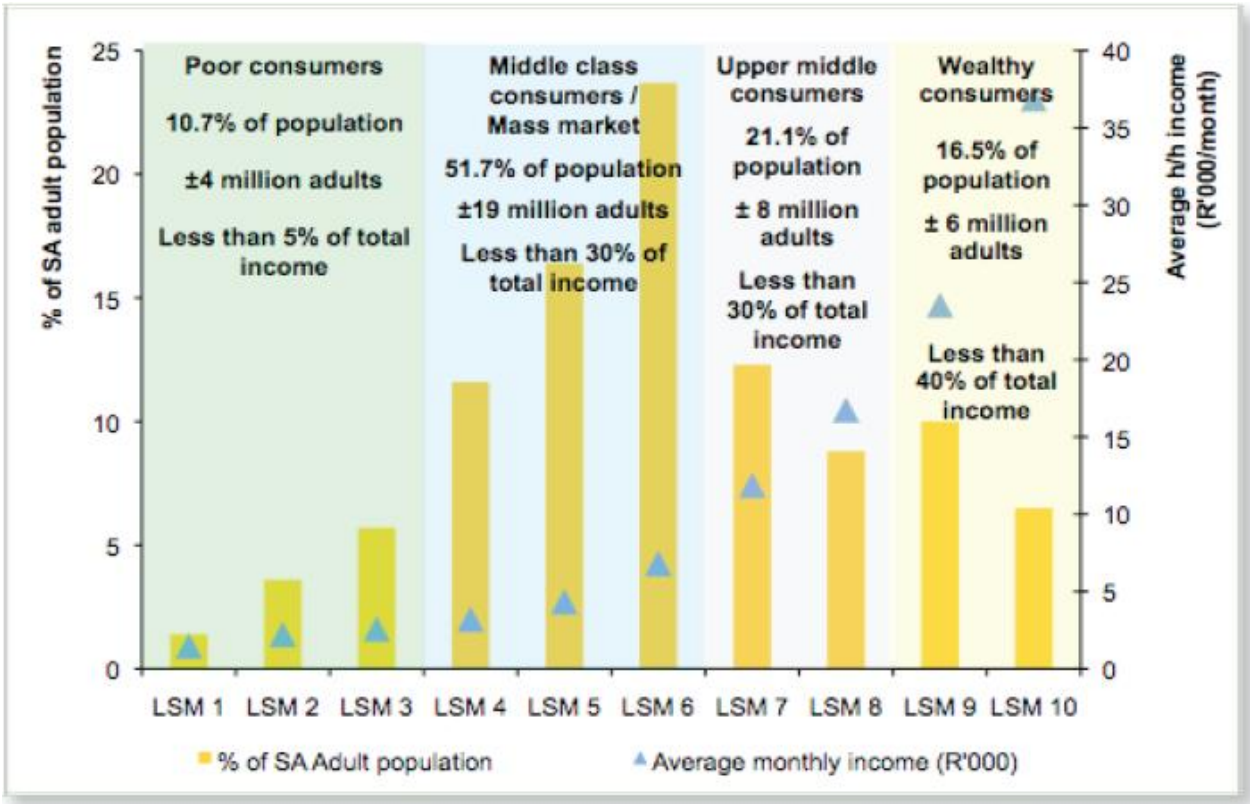
2.5 CONSUMER BEHAVIOUR

South African consumers’ daily diet frequently includes meat. Product quality and health consciousness combined with an emerging consumption pattern focussed on “healthy eating” increasingly drives consumer behaviour (Malindi, 2010:2). The level of consumer satisfaction depends on the consumer’s expectation and the satisfaction of the expectation by the product that is consumed. Past experience with regards to a particular retailer or cut of beef also adds to consumer behaviour in preventing or assisting in future purchase decisions depending on the experience. The choice of meat are largely determined by sensory attributes (appearance, aroma, flavour and texture) although consumers sometimes might trade sensory attributes for

other benefits such as nutritional value or price. A repeat purchase are unlikely to happen if the basic sensory attributes of health is not at least met (Malindi, 2010:1).

Labuschagne *et al.* (2011:4) state that “customer value is defined as the basis for customer satisfaction”. A combination of key market attributes leads to customer value attributes such as products and services, quality, price and delivery. The growing economy and population in South Africa are bringing about changes in the market (refer to figure 2.8 below). The emerging black middle class or “black diamonds” are also a phenomenon affecting the South African market. Labuschagne *et al.* (2011:4) further state that the South African market can be categorised and segmented through Living Standard Measure (LSM) (see Figure 2.7). Lower LSM spends a higher proportion of their disposable income on food when compared to higher income groups. Middle income groups tend to spend more on meat in proportion of their disposable income. Black middle class consumers are moving from the lower LSM groups to middle and high groups and the increase in per capita spending on beef can be attributed to this mentioned move.

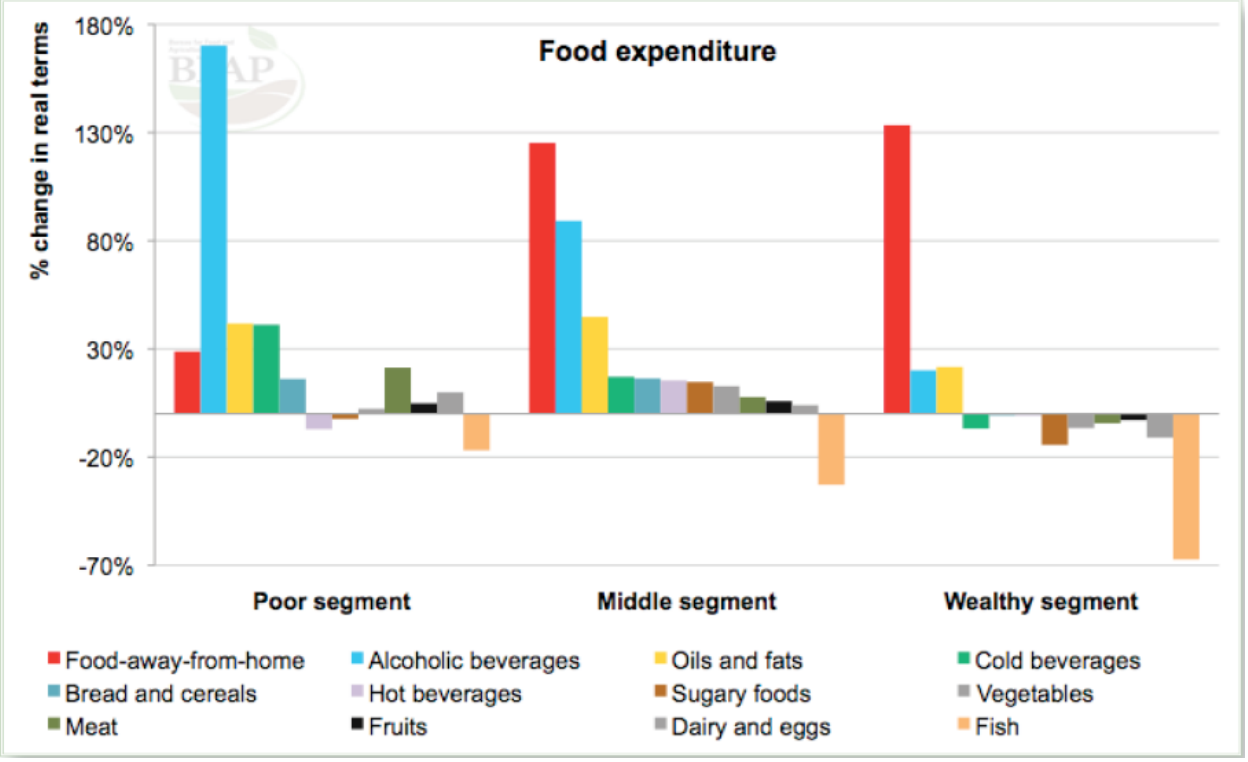
Figure 2-7 The SAARF LSM Segments: Proportion of SA adult population and average monthly household income 2013



Source: BFAP, 2014:91

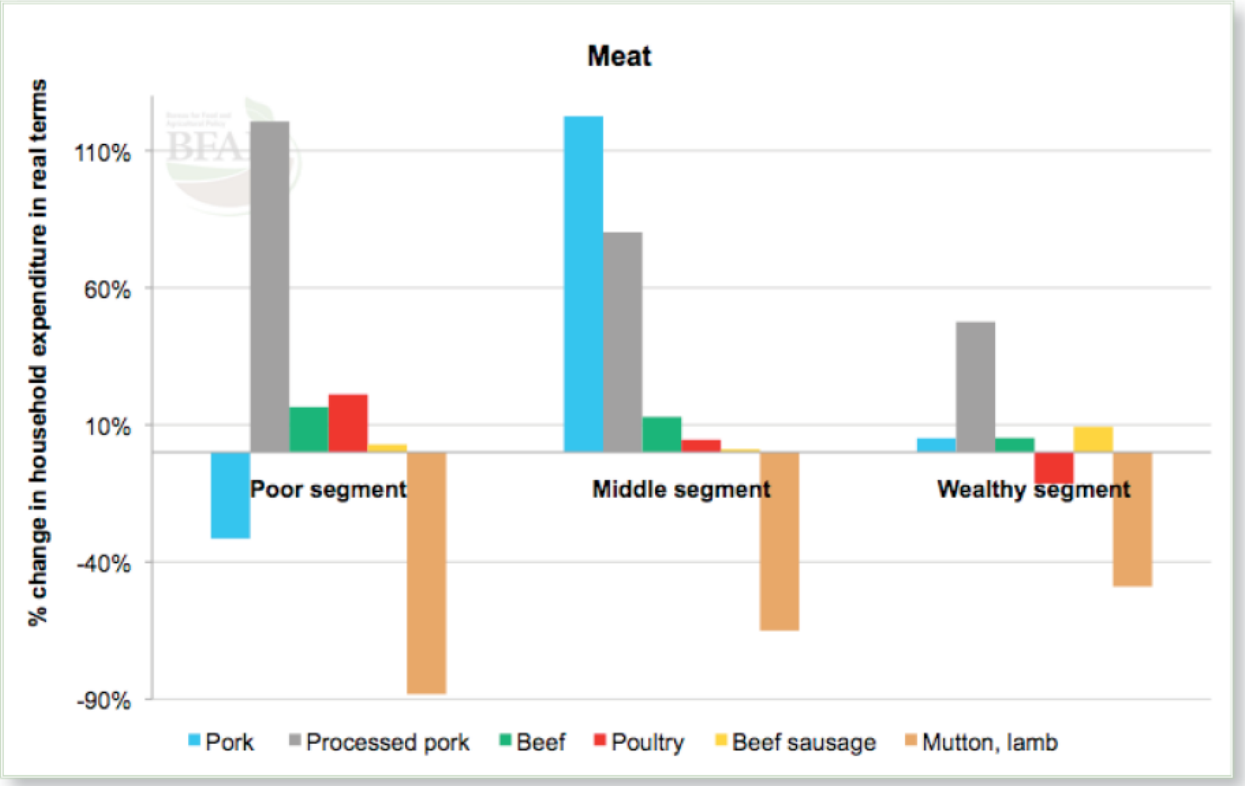
Taljaard et al., (2006:4) mention that disposable income, own price of beef, meat price related to other products, changes in size and structure of the population and changes in consumers' taste and preferences are the factors that influence meat demand in South Africa.

Figure 2-8 Real changes in households' expenditure on particular food groups by socio-economic sub-groups for 2005 and 2010



Source: BFAP, 2014:101

Figure 2-9 **Real changes in households' expenditure on main meat types by socio-economic sub-groups: 2005 & 2010**



Source: BFAP, 2014:106

These researchers state that the first three factors are economic in nature and found that the last three factors (non-economic) are becoming more important than in the past (Taljaard *et al.,* 2006:6).

Worldwide convenience, versatility, environmental and ethical issues, value for money, health consciousness and simplicity are the six most important consumer food trends (BFAP, 2009). South Africans are however less troubled by meat safety and animal welfare when compared to their international counterparts with many South African consumers still purchasing from the informal sector (street vendors, highly unlawful unregulated slaughtering) all of which carries major meat safety concerns (Labuschagne *et al.,* 2011:4). South African consumers do however correspond with international consumers where the need for convenience is concerned. Convenience relates to saving time and effort for the consumer. Food labelling and trademarks promote customer assurance. Although this is a small niche market the natural goodness of South African beef offers a promotional opportunity to consumers. Versatility as a consumer trend points to the fact that consumers want to be able to eat a variety of meals. This trend relates to a variety of meat types and cuts as well as preparation alternatives. This trend provides opportunities for more differentiation of meat products.

Malindi (2010:17-19) identified four consumers segments for beef in South Africa. This researcher states that the process of food choice and the perception of quality are characterised by individual differences. These differences depend on the consumer and his or her preferences. These four different consumer segments are:

- **The uninvolved consumer**: For these consumers food is not a central component in their lives. Their purchase motives for food are weak, and their interest in food quality is limited to convenience. They are uninterested in most aspects of shopping and do not make use of speciality shops. Their interest in price is also limited. They have no interest in cooking, snack mostly and do not plan their meals. 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**: These consumers closely 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 spontaneously by new products as long as these do not require effort in the kitchen or new cooking skills. The careless consumers, as is the case with the uninvolved consumer, tend to be young and often live in big cities. In contrast to the uninvolved, these consumers are more educated and consequently 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 an above-average interest in quality aspects, this segment is mainly characterised by the effort they put into the preparation of the meals. They are very interested in cooking, they enjoy new recipes as well as discovering new ways of preparing beef. These consumers involve the whole family in the cooking process, they are not interested in convenience and reject the notion that cooking is the woman's task. They require 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 their 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.

Research by Labuschagne *et al.* (2011:11), however, concluded that there is a large generic market segment for beef. Therefore the generic marketing of beef in South Africa rests on four pillars namely:

- enjoyment and appetite appeal;
- versatility and value;
- health and nutrition; and
- confidence and assurance.

These researchers state that consumer marketing aids to build the positive image of beef. They postulated that branding as marketing tool will become more important in the red meat industry and that some suppliers have successfully developed niche markets through branding of their products. Consumer pressure in South Africa has also contributed to transparency in the meat value chain and insisting on the right to know where there meat comes from. For some breeders (such as Angus SA) it was a good thing. The branding of their cattle from farm to fork gave consumers the peace of mind to know exactly on what farm their piece of meat that they consume where raised (Anon, 2014c). As a result, the postulations by Labuschagne *et al.* (2011:11) that beef producers will benefit from building consumer trust in locally-produced fresh beef and their astute management of the positive farming practices such as good disease status, regulations, leanness and taste resulted in an increase in local beef demand.

Using branding as a marketing tool, De Villiers (2012:11) states that only a few cattle breed societies have a defined branding strategy. He emphasised that by branding their individual breed's meat and thus bringing it to the attention of the consumers ought to result in an appreciable premium on top of the price. De Villiers (2012:13) continues his article by pointing to the South African breeders' associations which have made an effort in branding their product on the market. Breeders and retailers also complement each other in the competitive beef market. For example, when Woolworths announced that Hereford was one of their selected breeds they deem ideal for its *Select Beef programme* the SA Herefords Breeders Society launched their *Whiteface Weiner Programme*. This breeders' society saw the possible premiums across the food chain that could be generated as the quality of the product and the

breed's performance in the feedlots could be guaranteed through such an official branding programme.

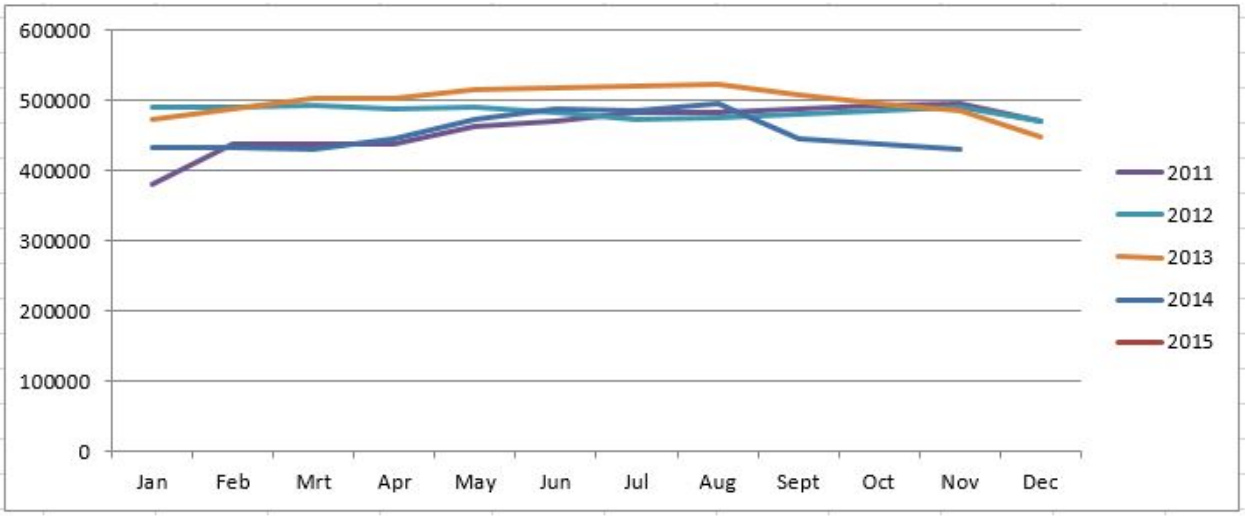
Sim beef (Simmentaler) and *Fleckvieh beef* are basically two names for the Simmentaler breed. The fact that there are two names for the same product is actually unfavourable when branding is concerned as it might lead to confusion amongst consumers. Fleckvieh cattle is a crossbred that originated in the nineteenth and early twentieth century by using Simmentaler as a dominant breed. The focus of the crossbreed was on meat and milk products in the Alps and contributed to the evolution of the breed whose meat today are known under the nutritionists as having exceptional health benefits. This status is a great marketing and sales pitch for *Sim Beef* within the small but well-established sophisticated market in South Africa.

On scanning the barcode of *Angus beef* in selected stores such as Pick n Pay, the detailed history of the origin of the beef is displayed. This includes information such as the farm or feedlot the animal the animal was supplied from, medical history of the animal and farming practices used to eventually produce the specific cut of beef on offer. The breeder society's website for producers deals with all the farming issues. There are however also an active link to the Internet site "Angus beef (Pty) Limited" that contains pictures of succulent steaks, recipes and meat displays. Pick n Pay and Angus are also the first collaboration to have launched a line of ready-to-eat dishes for consumers who want the great taste of the meat but have limited time to prepare the food, and thereby adding to the product range of beef in the consumer market.

Table 2.2 lists the five major beef cattle breeds in South Africa when registered animals (both male and female) are considered as the Bonsmara (96610 animals), the Nguni (37294 animals), the Brahman (35913 animals), the Beefmaster (27126 animals) and the Simmentaler (17998 animals). In South Africa 95% of our beef comes from feedlots (Ncwadi, 2015). Feedlots buy calves that are not useful for breeding from stud farmers and also crossbreds from the (cow and calf) commercial farmers. After the deregulation of the South African meat industry a number of larger feedlots have progressed vertically into slaughtering and retailing their own meat. The South African Feedlot Association (SAFA) accounts for approximately 75% of all beef produced. As depicted in figure 2-7 in real terms this is 1,35 million head per annum with a one-time standing total of approximately 420 000 head.

Figure 2-10: Feedlot standing stock (approximate)

FEEDLOT STANDING STOCK (Approx).						
	2010	2011	2012	2013	2014	2015
JAN	387173	380192	489658	474240	434213	640960
FEB	371157	437467	491617	487606	433685	668082
MAR	389258	437383	493533	502234	430931	640960
APR	402158	438230	487610	503208	445635	642350
MAY	399694	463837	490048	516795	472373	581645
JUN	408146	471341	483196	517725	487725	
JUL	408577	483185	472565	521867	486311	
AUG	412609	483421	474928	523276	496624	
SEP	415503	487267	481574	509276	445762	
OCT	422049	493204	484977	495525	437292	
NOV	408807	496148	491102	486357	430931	
DEC	372737	470476	470476	449323		



Source: SAFA, 2015

Beef breed characteristics are summarised in table 2-2 below, indicating weight gains and production figures.

Table 2-2: Major beef cattle breeds in South Africa and traits recorded

	Registered Females	Registered Males	Birth weight dir	Birth weight mat	Weaning weight	Milk	Combined Mat	12month weight	18month weight	Post wean weight	Mature weight	ADG	Kleiber Ratio	FCR	Scrotum circumf.	AFC	ICP	Height	Length	Dressing%	Meat yield	Marbling	Growth Value	Cow Value	Production Value
Sanga:																									
Nguni	31400	5894	x	x	x	x		x	x		x	x	x												
Drakens-berger	8167	1637	x	x	x	x				x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Afrikaner	4539	680	x	x	x	x		x	x		x	x	x	x	x			x	x						
Tuli	3747	824	x	x	x	x		x	x		x	x	x												
British breeds:																									
Angus SA.	10553	1723	x		x	x	x			x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Hereford	3789	624	x	x	x	x		x	x		x	x	x	x	x			x	x						
Sussex	4260	882	x	x	x	x		x	x		x	x	x	x	x			x	x						
European breeds:																									
Charolais	3291	570	x	x	x	x		x	x		x	x	x	x	x	x	x	x	x						
Braunvieh	1345	177	x	x	x	x		x	x		x	x	x					x	x						
Pinzgauer	1101	169	x	x	x	x		x	x		x	x	x					x	x						
Composite breeds:																									
Bonsmara	81881	14729	x	x	x	x				x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Beefmaster	24134	2992	x	x	x	x		x	x		x	x	x	x	x			x	x						
Santa Gertrudis	1825	1826	x	x	x	x		x	x		x	x	x	x	x			x	x						
	Registered Females	Registered Males	Birth weight	200d Weight	400d Weight	600d weight	Mature CowWeight	Milk	Scrotal size	Days to calving	Gestation length	Calving ease	Carcass weight	EMA	Rib fat	Rump fat	Retail Beef Yield	IMF%	Feedlot index	Grassfed index	Terminal sire index	Weaner index			
***Bos indicus*:**																									
Brahman	24542	11371	x	x	x	x	x	x	x				x	x	x	x	x	x							
European breeds:																									
Limousin	3949	1762	x	x	x	x	x	x	x				x	x	x	x	x	x							
Simmen-taler	13755	4243	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x				
Composite breeds:																									
Brangus	4643	1704	x	x	x	x	x	x	x	x	x		x	x	x	x	x	x							
Simbra	7388	2893	x	x	x	x	x	x	x	x	x		x	x	x	x	x	x	x	x		x			
Braford	1850	675	x	x	x	x	x	x	x	x			x	x	x	x	x	x							

Source : Marle-Köster et al., 2013:10

2.6 CATTLE BREEDS

A short description of each of the five most registered beef breeds in South Africa follows.

2.6.1 The Bonsmara

The Bonsmara has the largest number of registered stud animals in South Africa. It is the only recognized synthetic breed in the world that was developed through the objective use of performance data (Niemand, 2013:12). Professor Jan Bonsma wished to create a breed that was better adapted to the harsh South African climate (Pentz, 2009:10). The European breeds were ill adapted for the subtropic climate and the local breeds did not have the same carcass quality and feedlot performance as European breeds. Through the use of a cross-breeding program Professor Bonsma combined three sixteenth Hereford, three sixteenth Shorthorn and five eights Afrikaner (Niemand, 2013:12). This is five eights Sanga and three eights Bos Taurus, which resulted in improved heat resistance, ideal for the warmer parts of South Africa such as the North West and Limpopo province.

Today the Bonsmara breed is spread all over South Africa and Southern Africa with highest concentrations in the North West province, Free State and Limpopo. Herds of Bonsmaras are also bred in Australia, Argentina, Brazil, USA and Uruguay (Niemand, 2013:12). The large gene pool adds variation and scope for genetic improvement. The Bonsmara is a red, medium frame animal that is early maturing (Visagie, 2012:24).

2.6.2 The Nguni

The Nguni is widely acknowledged to be the outstanding beef breed for optimal production under harsh African conditions.

South Africa's indigenous Nguni cattle, long the mainstay of traditional Zulu culture, are possibly the most beautiful cattle in the world, with their variously patterned and multi-coloured hides everywhere in demand (Anon, 2015b).

2.6.3 The Brahman

The first and formal adoption of the word Brahman originated with the inception of the American Brahman Breeders Association (ABBA) in 1924. The introduction of the Brahman to the South African beef cattle scene originated back in 1954 when Mr Jurgen Crantz, of Windhoek, in South West Africa as they knew it in those days, initially imported eight males and ten females from Texas, USA, to be landed at Cape Town harbour.

The contribution Brahmans have made towards the South African stud and commercial industry can be described as remarkable, especially during the first three decades starting in 1960. The distinctive appearance of the Brahman during the subsequent decade sets them apart from any other traditional beef breed in South Africa. The hump on top of its shoulders,

large pendulous ears, abundant folds of skin and distinctive colour have contributed towards the phenomenal growth being recorded in those days (Anon, 2014f).

2.6.4 The Beefmaster

Beefmaster is a synthetic breed that is genetically composed of ± 50% Brahman, 25% Hereford and 25% Shorthorn blood. The result was the Beefmaster that inherited the best characteristics of each individual breed. This was achieved after years of selective breeding, careful experiments and removing of unwanted animals. Throughout the history of the Beefmaster breed the main objective was meat production. The best cattle produce the most high quality meat at the lowest cost. The breeding and management program that is followed is based on nature's oldest law: "Survival of the fittest." Upon selection six characteristics are required. The required economically important traits are: fertility, temperament, weight, conformation, hardiness and milk production (Anon, 2015a).

2.6.5 The Simmentaler

The Simmentaler breed originated from Switzerland in the Simme River valley. It is professed as one of the strongest cross-breeding breeds available, an attribute that ensured popularity worldwide. The breed has the second largest breeding association in the world after the Holstein (which is a milk producing cow and not a beef cattle breed) and is also known as Fleckvieh, Abondance, Pezzata Rossa, Montbeliarde and Simmental (Pentz, 2009:11). This

means that although with regards to registered animals in South Africa the Simmentaler only occupies the fifth place in South Africa, it has the largest beef cattle breeding association in the world. The first Simmentalers were introduced to South Africa when President Steyn of the Free State established a stud in 1905. The breed did not hold a strong position in the South African market until the 1960s when tests revealed its excellent attributes. The breed is excellent in factors such as reproduction index, weaning weight, yearling weight of heifers and feedlot growth.

2.7 SUMMARY

The literature study performed is quite general with regards to the cattle beef, livestock and agricultural sectors in South Africa. Marketing and consumer behaviour aspects are not delved into very deeply, but sufficiently in order for the author to gain insight into meet consumption patterns, cattle head counts, beef value chain and breed characteristics.

The literature study also gives insight into the classification of South African beef as well as the different beef cuts. The Living Standard Measure (LSM) in South Africa assisted the author to receive knowledge on how much money different income groups spend on food and in particular what food groups.

The literature study also examined the five major beef cattle breeds in South Africa. The characteristics, history and origin of each of these five breeds where discussed in more detail.

The next chapter presents the results obtained from the empirical study pertaining the consumer preferences of beef.

CHAPTER 3 RESEARCH METHODOLOGY AND RESULTS

3.1 INTRODUCTION

This chapter explains the research methodology employed in the study and reports on the results of the empirical study. More specifically the chapter focuses on the following aspects:

- Research methodology;
- Statistical techniques employed; and
- Discussion of the results obtained by the analyses.

The chapter employs a range of statistical tools to achieve the desired results. Exploratory factor analysis was used to weed out criteria of lower importance, sample adequacy was statistically determined, the reliability and correlation coefficients calculated, and reports on the importance of the selected criteria and its measuring items. The chapter culminates in a summary of the empirical research of the study.

3.2 RESEARCH METHODOLOGY

The data was collected by means of a tried and tested structured questionnaire to measure beef purchasing behaviour of consumers. The questionnaire was developed by Malindi (2010) and it uses a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The questionnaire appears in Annexure A. Regarding data collection, a convenience sample was employed and the researcher, with assistance of friends and family, targeted random consumers to report on their beef purchasing behaviour.

The questionnaires were distributed in hard copy format by hand to random consumers in shopping malls, butcheries and various office buildings. A total of 170 questionnaires were distributed. A total of 159 fully completed questionnaires were received back. Consumers were requested to complete the questionnaires on the spot and hand them back. This signified a response rate of 93.5%.

The data capturing services of the North-West University's Statistical Consultation Services were employed to capture the data whereafter a statistical analyst from the university advised and analysed the data professionally. The statistical software "Statistical Package for the Social Sciences" (SPSS) 2015 version 22 was employed to perform the analysis.

3.3 RESULTS

3.3.1 Demographic profile

The demographic profile of the respondents is summarized in table 3.1.

Table 3-1: Demographical information

Category	Percentage		Category	Percentage
Age			*Marital status*	
20-30	28,3		Single	37,1
30-40	32,7		Married	49,1
40-50	17,6		Divorced	9,4
50-60	15,1		Widower	4,4
60+	6,3			
Ethnicity			*Who buys the butcheries*	
African	25,8		I do	64,2
Caucasian	47,8		My husband	12,6
Indian	5,7		My wife	9,4
Coloured	7,5		Other	10,7
Other	11,3			
Level of education			*Family size*	
Primary School	,6		Alone	25,2
High School	52,8		<5	59,1
Technical college	13,8		5 to 10	14,5
University degree	32,7		>10	0
Income			*Gender*	
< R5000	11,9		Male	39,0
R5000 - R10 000	25,2		Female	61,0
R10 000 - R20 000	20,8			
R20 000 - R40 000	20,8			
R40 000 - R80 000	15,1			
R80 000+	5,7			

As shown in Table 3.1, 61% of the respondents were between the ages of 20-40. Most of the respondents (47%) were white and 52.8% finished high school. Income amongst the respondents was evenly spread except that only 5.7% of the respondents earned more than R80 000.00 per month. Regarding gender, the majority of the respondents were female (61%).

Most of the respondents (49.1%) were married and most of the respondents (64.2%) did the beef purchases themselves. With regards to family size most of the respondents (59.1%) families were less than five members.

3.4 VALIDITY OF RESEARCH INSTRUMENT

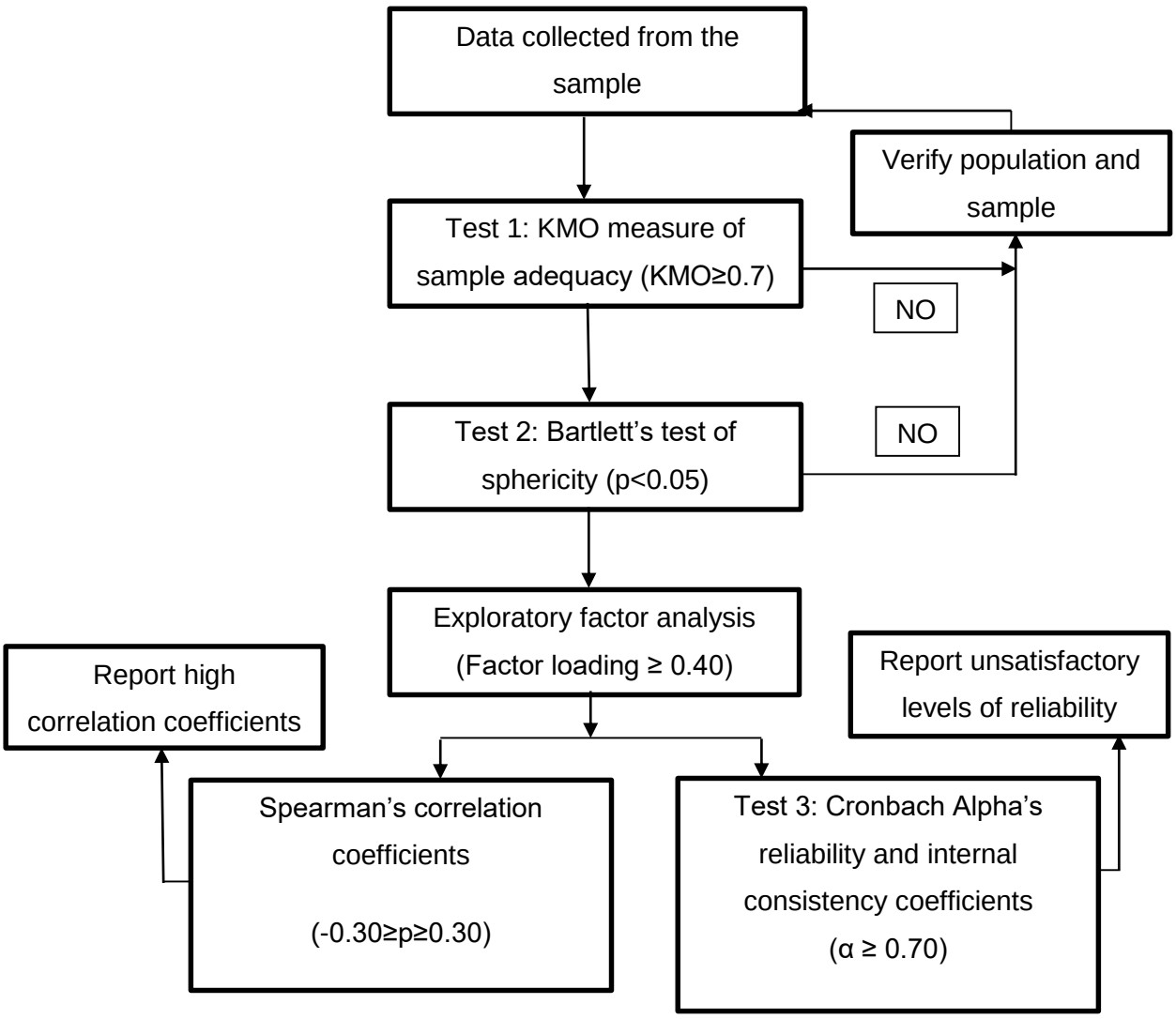
The validity of the questionnaire was ensured by the use of exploratory factor analysis. Each of the sub-sections of the questionnaire was subjected to factor analysis to determine if the questions pertaining to that section actually do measure and belong to that section of the questionnaire. It was also important to determine if the sub-section is a single construct or if it consists of sub-constructs. Factor analysis is deemed a suitable technique to do so (Field, 2009:669;).

The suitability of the data to be subjected to factor analysis as validation tool was also checked by applying the Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) and the Barlett's Test of Sphericity. These measurements strive to measure the KMO at ≥ 0.700 although scores of 0.60 are deemed to be acceptable, The Barlett's test is significant at $\text{values} \leq 0.005$ (Field, 2009:668). Both these measures are indicators of the suitability of the data for factor analysis. The statistical analysis process followed the stages reflected by the decision diagram (Figure 1.3)

The Bartlett's test of sphericity was employed to test that the items in the questionnaire correlation matrix are uncorrelated and therefore the data will not be subjected to factor analysis if the strength of the p-values p>0.0.005 (Naidoo, 2011; Field, 2009:669).

Figure 3.1 explains the process of ensuring the validity of the questionnaire by means of a diagram.

Figure 3-1: Decision diagram



Source: Naidoo (2011)

3.4.1 FACTOR 1: QUALITY OF THE MEAT

The sample adequacy and sphericity is shown in table 3.2 below.

Table 3-2 KMO and Bartlett Test - Quality of meat

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.739
Bartlett's Test of Sphericity	Approx. Chi-Square	70.532
	df	15
	Sig.	.000

The KMO score is larger than the 0.700 requirement at 0.739 and the Bartlett's score equally satisfactory at 0.000. This means that the data is suitable for factor analysis.

The factor loadings pertaining to factor 1 is shown in table 3-3.

Table 3-3 Factor analysis of quality of meat

	Component
	1
Q1 I normally buy meat according to the nutritional value on the pack	,800
Q2 I consider the origin (from what farm) of the meat	,716
Q4 I highly consider the shelf life of the meat pack when buying meat from the shopping centres	,662
Q5 I normally look out for the roller stamp of the carcass (differentiate grade/age of the carcass)	,654
Q3 I highly consider the preservatives added to the meat	,629

The factor analysis of the *Quality of meat* indicates that questions one to five all relate to one factor and pertains to quality issues such as nutritional value, origin of the beef, grading and non-preservatives. However, question six (I prefer marinated beef) was omitted from the analysis because of its low factor loading (lower than the required minimum of 0.40). This means that *Quality of the meat* is adequately measured by questions Q1, Q2, Q3, Q4 & Q5. The total variance explained by the factor is 40.5%.

3.4.2 FACTOR 2: BUYING PREFERENCES

The sample adequacy and sphericity are shown in table 3.4 below.

Table 3-4 KMO and Bartlett Test – Buying preferences

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		,503
Bartlett's Test of Sphericity	Approx. Chi-Square	92,681
	df	21
	Sig.	,000

The buying preferences questions are summarized in Table 3.5. The KMO score is lower than the desired 0.700 but exceeds the minimum required score of 0.503 (NWU Statistical Consultation Services, 2015). Bartlett's test is satisfactory at 0.000.

Table 3-5 Factor analysis of buying preferences

	Component
	1
Q5 I prefer buying meat in bulk than in R/kg	-,825
Q4 I prefer buying meat in R/kg than bulk	,708
Q2 I prefer buying meat from grocery stores than butcheries	-,552
Q3 I prefer buying meat direct from my local farmer	-,264

The factor analysis of the *Buying preferences* indicates that questions two to five all load onto to one factor. The negative loadings indicate that the consumers in fact do not buy their meat in bulk, from grocery stores or from farmers directly. It would seem that the butchery is the supplier of choice and that smaller volumes per kilograms are preferable. However, question one (I buy meat from a known retailer), question six (I prefer buying meat that is neatly package from a well-known supplier) and question seven (I know which cut to buy ensuring accurate cost effective decision) was omitted from the analysis because of their low factor loadings (lower than the required minimum of 0.40). Resultantly *Buying preferences* is adequately measured by questions Q2, Q3, Q4 & Q5. The total variance explained by this factor is 44.4%.

3.4.3 FACTOR 3: FARMING PRACTICES

The sample adequacy and sphericity is shown in table 3.6 below.

Table 3-6 KMO and Bartlett Test – Farming Practises

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0,748
Bartlett's Test of Sphericity	Approx. Chi-Square	321,500
	df	36
	Sig.	,000

The KMO score is larger than the 0.700 requirement at 0.748 and the Bartlett's score equally satisfactory at 0.000. This means that the data can be used to perform a factor analysis.

Table 3-7 Factor analysis of Farming practises

	Component
Q2 I buy meat that is hormone free	,776
Q4 I only buy meat that I know was produced in an animal friendly production environment	,753
Q3 I buy meat that is free range	,722
Q5 Ingredients	,712
Q7 I only buy a specific breed of beef cattle	,694
Q8 I only buy meat which origin is in South Africa	,622

.

The questions loading onto this factor all relates to *Farming practices*. Issues such as no hormones, animal friendly practices, free range and known origin (including beef from specific cattle breeds) are deemed important buying behavioural issues. However, the analysis indicated that three questions should be discarded due to their low factor loadings (<0.40). These are question one (Freshness), question six (Price) and question nine (Attractive packaging / appearance of meat; Appearance of the meat is critical when I purchase meat). Although all these criteria are important buying behavioural criteria, it is clear that they do not belong to the factor labelled Farming practices. These issues are more appropriately related to prices and product quality issues. This factor is measured by questions Q2, Q3, Q4, Q5, Q7 & Q8, explaining a total variance of 34.4%

3.4.4 FACTOR 4: INTENTION TO BUY

The sample adequacy and sphericity is shown in table 3.8 below.

Table 3-8: KMO and Bartlett Test – Intention to buy

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		,553
Bartlett's Test of Sphericity	Approx. Chi-Square	91,305
	df	10
	Sig.	,000

The KMO score is lower than the desired 0.700 but above the required 0.50 at 0.553 (Ellis, 2015). Bartlett's score is satisfactory at 0.000. This means that the data is suitable for factor analysis.

Table 3-9 Factor analysis of intention to buy

	Component	
	1	2
Q4 I am normally reading and evaluating meat advertisements critically and regularly	,870	
Q5 My decision to purchase meat is influenced by advertising	,833	
Q3 I am normally avoiding to buy meat at the beginning or the end of the month or holiday seasons	,503	
Q1 I don't compromise the quality of the meat when having a braai		,811
Q2 I buy meat in accordance to family preference		,791

The factor analysis of *Intention to buy* indicates that there are two sub-factors within the factor. Sub-factor 1 consists of the questions Q3-Q5, while sub-factor 2 consists of Q1 and Q2.

- *Sub-factor 1* deals with advertising of meat (Q4 & Q5) while question three deals with priced related intervals (beginning/end of month) where special deals are more likely to be found. The factor is labelled as "*Meat portions*".
- *Sub-factor 2* deals with specific meat requirements, such as specific cuts for a barbeque and family specific needs. Resultantly this sub-factor is labelled as "*Specific requirements*".

The cumulative variance explained high at 96.5% with the two sub-factors explaining 60.1% and 36.4% of the variance, respectively.

3.4.5 FACTOR 5: HEALTH

The sample adequacy and sphericity is shown in table 3.10 below.

Table 3-10 KMO and Bartlett Test – Health

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		,624
Bartlett's Test of Sphericity	Approx. Chi-Square	106,679
	df	15
	Sig.	,000

The KMO score is 0.624. Although lower than the desired 0.700 it exceeds the required 0.50 with ease, hence the sample is deemed adequate for analysis. Bartlett's score is also below the required 0.005. The data is, therefore, satisfactory to use in factor analysis.

Table 3-11: Factor analysis of health

	Component	
	1	2
Q5 I prefer buying meat from credited outlets	,834	
Q6 I buy neatly packed meat with labelling showing shelf life	,664	
Q4 I don't buy meat from unknown outlets	,591	
Q2 I give myself enough time to buy meat because its quality is very Important to my health		-,859
Q3 I trust and believe that eating healthy in terms of nutritional value displayed on the meat packaging can prolong life		-,877

The factor analysis of Health indicates that there are two sub-factors present. Sub-factor 1 consists of the questions Q3-Q5, while sub-factor 2 consists of Q1 and Q2. The cumulative variance explained is 86.9% with the two sub-factors explaining 53.0% and 33.9% of the variance respectively.

- Sub-factor 1 deal with credited outlets/suppliers of meat (Q4 & Q5) while question six deals with packaging (neatly packed meat) more likely to be found at better suppliers. The sub-factor is labelled as "Suppliers".
- Sub-factor 2 deals with specific health believes, such as taking time to purchase in order to evaluate the quality of the meat and eating healthy by following nutritional values displayed on the packaging. Resultantly this sub-factor is labelled as "Health consciousness".

3.4.6 FACTOR 6: CONVENIENCE

The sample adequacy and sphericity is shown in table 3.12 below.

Table 3-12 KMO and Bartlett Test – Convenience

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		,500
Bartlett's Test of Sphericity	Approx. Chi-Square	91,239
	df	3
	Sig.	,000

The KMO score is equal to the required minimum value of 0.500 while the Bartlett's score is below the required 0.005.

Table 3-13: Factor analysis of convenience

	Component	
	1	
Q1 I buy whichever meat is available on the shelf	,913	
Q2 I only buy meat from shops close by	,911	

The factor analysis of Convenience indicates that questions one and two loaded onto one factor. Both these questions deal with ease of availability, hence the convenience factor. The factor explains a variance of 55.66%.

3.4.7 FACTOR 7: EATING SITUATION

The sample adequacy and sphericity are shown in table 3.14 below.

Table 3-14: KMO and Bartlett Test – eating situation

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		,598
Bartlett's Test of Sphericity	Approx. Chi-Square	73,723
	df	15
	Sig.	,000

The KMO score is above the 0.50 requirement at 0.598 and the Bartlett's score is satisfactory at 0.000.

Table 3-15: Factor analysis of eating situation

	Component	
	1	2
Q1 I can compare between superior and inferior meat quality after consumption of the meat	,768	
Q2 Packaging of raw meat is important to me	,694	
Q3 I prefer buying known brands of meat	,699	
Q6 I prefer to make a quick meal		,755
Q4 I prefer knowing the origin of the meat before buying it		,589
Q5 I prefer to remove fat layer before eating prepared meat		,632

The factor analysis of Involvement indicates that there are two sub-factors within the influence. Sub-factor 1 consists of the questions Q1- Q3, while sub-factor 2 consists of Q4 – Q6. The cumulative variance explained is 52.1% with the two sub-factors explaining 28.9% and 23.2% of the variance respectively.

- Sub-factor 1 deals with packaging of meat (Q1, Q2 & Q3). The factor is labelled as “Packaging”.
- Sub-factor 2 deal with eating preferences of prepared meat (Q5 & Q6) while question four deals with the origin of the meat (knowing the origin) before purchasing occurs. The factor is labelled as “Prepared meat”.

3.4.8 FACTOR 8: FUTURE PURCHASE

The sample adequacy and sphericity is shown in table 3.16 below.

Table 3-16: KMO and Bartlett Test – future purchase

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		,588
Bartlett's Test of Sphericity	Approx. Chi-Square	23,729
	df	3
	Sig.	,000

The KMO score exceeds the 0.500 requirement at 0.588. Bartlett’s score is satisfactory at 0.000. This means that the data is suitable for factor analysis.

Table 3-17: Factor analysis future purchase

	Component
	1
Q1 I can recommend anyone to a butcher that serves good quality meat	,735
Q2 I can relate the price rate (R/kg) with the size of the cut (value for money)	,732
Q3 I critically analyse the meat advertisements and make purchasing decisions	,622

The factor analysis of the future purchase indicates that the entire set of questions has factor loadings that exceed the required 0.4 and therefore no questions should be excluded. In addition, all these questions loaded onto one factor which means that the influence is pure. The total variance explained is 48.75%.

3.5 CORRELATION COEFFICIENTS

The table below shows the correlation coefficients between the factors and the demographical information gained through the use of the questionnaire as well as the correlation coefficients between the factors themselves.

The coefficient (*r) is* called the *linear correlation coefficient* and it measures the strength and the direction of a linear relationship between two variables. The linear correlation coefficient is sometimes referred to as the *Pearson product moment correlation coefficient* in honour of its developer Karl Pearson (Anon, 2015c).

- The value of *r* is such that $-1 \leq r \leq +1$. The + and – signs are used for positive linear correlations and negative linear correlations, respectively. *Positive correlation:* If *x* and *y* have a strong positive linear correlation, *r* is close to +1. An *r* value of exactly +1 indicates a perfect positive fit. Positive values indicate a relationship between *x* and *y* variables such that as values for *x* increases, values for *y* also increase.
- *Negative correlation:* If *x* and *y* have a strong negative linear correlation, *r* is close to -1. An *r* value of exactly -1 indicates a perfect negative fit. Negative values indicate a relationship between *x* and *y* such that as values for *x* increase, values for *y* decrease.

A correlation where the *r* value is less than 0.3 are considered weak, $0.3 < r < 0.5$ are considered a good correlation, and if $r > 0.5$ it is considered as a strong correlation. Only significant correlations ($p<=0.05$) are considered. The table below shows the significant correlations identified between demographic variables and the factors.

Table 3-18: Correlation between factors and demographic information

		Age	Education	Income	Family size
Quality	Correlation Coefficient	**.174***	,107	-,001	,028
	Sig. (2-tailed)	,028	,178	,990	,732
	N	159	159	158	157
Intention to buy	Correlation Coefficient	**.204***	-,018	,030	,072
	Sig. (2-tailed)	,010	,822	,710	,371
	N	159	159	158	157
Future purchase2	Correlation Coefficient	**.203***	-,148	-,062	,115
	Sig. (2-tailed)	,011	,064	,441	,154
	N	158	158	157	156
Future purchase3	Correlation Coefficient	**.218***	,006	-,080	,140
	Sig. (2-tailed)	,006	,936	,321	,082
	N	158	158	157	156

*indicate significant correlation coefficients at p=<0.05

From the table it is clear that positive correlations exist between *Age* and *Quality*, *Age* and *Intention to buy* as well as *Age* and *Future purchases.* This means that as consumers grow older they tend to value quality more, buying more in accordance to their family preference, are influenced more through advertising and look more for value for money when purchasing beef. Unfortunately, although significant, all these correlations are weak ($r < 0.30$).

Table 3-19: Inter-correlations between the different factors extracted from the data and the omitted questions

		QUALITY	BUYING PREFERENCE	FARMING PRACTICES	INTENTION TO BUY	HEALTH	SUPPLIER	CONVENIENCE	PACKAGING
IN1 I buy meat from a known retailer	Correlation Coefficient	,123	-.174*	,026	.189*	.184*	.241*	,071	.335*
	Sig. (2-tailed)	,123	,029	,743	,017	,021	,002	,373	,000
	N	159	159	158	159	159	159	159	159
IN2 I prefer buying meat from grocery stores than butcheries	Correlation Coefficient	.188*	.170*	.172*	,139	-,020	,002	.343*	-,069
	Sig. (2-tailed)	,018	,032	,031	,080	,804	,978	,000	,385
	N	159	159	158	159	159	159	159	159
IN6 I prefer buying meat that is neatly package from a well-known supplier	Correlation Coefficient	.243*	,095	,148	,132	.182*	.310*	-,003	.343*
	Sig. (2-tailed)	,002	,232	,064	,098	,022	,000	,968	,000
	N	159	159	158	159	159	159	159	159
IN7 I know which cut to buy ensuring accurate cost effective decision	Correlation Coefficient	.185*	,005	.212*	.367*	.239*	,092	,068	.180*
	Sig. (2-tailed)	,020	,951	,008	,000	,003	,253	,395	,024
	N	157	157	156	157	157	157	157	157
MEAT1 Freshness	Correlation Coefficient	,091	-,036	-,033	.189*	.181*	.226*	-,011	.324*
	Sig. (2-tailed)	,254	,654	,682	,017	,023	,004	,887	,000
	N	159	159	158	159	159	159	159	159

		QUALITY	BUYING PREFERENCE	FARMING PRACTICES	INTENTION TO BUY	HEALTH	SUPPLIER	CONVENIENCE	PACKAGING
MEAT9 I like to buy meat that has an attractive packaging. Appearance of the meat is critical when I purchase meat.	Correlation Coefficient	.225*	-,026	,100	.330*	.192*	.368*	.207*	.396*
	Sig. (2-tailed)	,004	,748	,209	,000	,016	,000	,009	,000
	N	158	158	158	158	158	158	158	158
HEALTH1 I don't compromise the quality of meat I buy	Correlation Coefficient	.169*	,109	.158*	.271*	.190*	.176*	.158*	.318*
	Sig. (2-tailed)	,034	,174	,049	,001	,017	,027	,047	,000
	N	158	158	157	158	158	158	158	158
EAT4 I prefer knowing the origin of the meat before buying it	Correlation Coefficient	.507*	.194*	.462*	.256*	.363*	,114	,105	.207*
	Sig. (2-tailed)	,000	,015	,000	,001	,000	,156	,193	,010
	N	156	156	155	156	156	156	156	156
FUT1 I can recommend anyone to a butcher that serve quality meat	Correlation Coefficient	,150	.168*	,101	.302*	.284*	.231*	-,079	.243*
	Sig. (2-tailed)	,060	,034	,205	,000	,000	,003	,320	,002
	N	159	159	158	159	159	159	159	159

		QUALITY	BUYING PREFERENCE	FARMING PRACTICES	INTENTION TO BUY	HEALTH	SUPPLIER	CONVENIENCE	PACKAGING
FUT2 I can relate the price rate (R/kg) with the size of the cut (value for money)	Correlation Coefficient	.181*	,102	.175*	.321*	.171*	,114	,057	.205*
	Sig. (2-tailed)	,023	,202	,028	,000	,031	,155	,474	,010
	N	158	158	157	158	158	158	158	158
FUT3 I critically analyse the meat advertisements and make purchasing decision	Correlation Coefficient	.372*	,122	.169*	.575*	.310*	-,018	,135	.355*
	Sig. (2-tailed)	,000	,128	,035	,000	,000	,827	,090	,000
	N	158	158	157	158	158	158	158	158

Significant at p<=0.05

From the table 3.19 above the following correlations were found. For the purpose of the discussion correlations will be divided into two groups: Good correlations $0.3 < r < 0.5$ and strong correlations $r > 0.5$. The omitted question “I buy meat from a known retailer” had a good positive correlation to packaging indicating that better known suppliers has better packaging which as mentioned is important to consumers. The omitted question, “I prefer buying meat from grocery stores than butcheries” had a good positive correlation to convenience. This indicates that consumers buy more from grocery stores due to the convenient location of these stores. The omitted question “I prefer buying meat that is neatly packaged from a well-known supplier” had good positive correlations to both supplier and packaging. This shows that suppliers who package their meat products better, should get preference from consumers. The omitted question, “I know which cut to buy ensuring accurate cost effective decision” had a good positive correlation to intention to buy indicating that more educated consumers are the more their intention to buy beef will be. Omitted question “Freshness” had a good positive correlation to packaging indicating that better packaging will lead to better freshness. The omitted question, “I like to buy meat that has an attractive packaging. Appearance of the meat is critical when I purchase meat” had good positive correlations to intention to buy, supplier and packaging indicating that better suppliers that package their beef products better will stimulate the intention to buy from consumers. Omitted question, “I don’t compromise on the quality of the meat I buy” had a good positive correlation to packaging indicating that better packaging increase the quality of the meat. The omitted question, “I prefer knowing the origin of the meat before buying it” had good positive correlations to farming practices and health indicating that consumers prefer knowing what farming practices are used and believe that knowledge of the origin of the beef will increase the health of the meat. The omitted question, “I can recommend anyone to a butcher that serves good quality meat” had a good positive correlation to intention to buy and supplier. The consumers’ intention to buy will increase and recommendation will increase with the quality served by the butcher. The omitted question, “I can relate the price rate (R/kg) with the size of the cut (value for money) had a good positive correlation to intention to buy indication that as value for money increases the intention to buy from consumers will too. The omitted question, “I critically analyse the meat advertisements and make purchasing decision” had good positive correlations with quality, health and packaging.

A strong positive correlation was found between the omitted question, “I prefer knowing the origin of the meat before buying it” and quality. This indicates that an increased awareness of beef origin is likely to increase the perception of the quality of the beef. A strong positive correlation was found between omitted question, “I critically analyse the meat advertisements

and make a purchasing decision" and intention to buy. This indicates that increased advertisement will lead to an increase in the intention to buy from consumers.

Table 3-20 on the next page indicates correlation coefficients between factors. Good positive correlations, $0.3 < r < 0.5$ were found between quality and buying preference and quality and intention to buy. This indicates that consumers are more willing to purchase beef if the quality of the meat is good. Buying preference and farming practices also had a good positive correlation indicating that consumers buy more beef if farming practices are good. Farming practices had good positive correlations with intention to buy and health indicating that should good farming practices increase the intention from consumers to buy will increase as well as their health consciousness. The intention to buy of consumers had good positive correlations to health and packaging. Indicating that as the health conscious of consumers increase the intention to buy will increase as well and that better packaging will also increase the intention to buy. Health had a good positive correlation to packaging indicating that better packaging will aid to consumers' health consciousness with regards to beef purchases. Supplier had a good positive correlation with packaging indicating that better packaging are associated with better suppliers.

Strong positive correlations $r > 0.5$ were found between quality and farming practices (0.621) and quality and health indicating that better farming practices will increase quality and increased quality will lead to healthier beef.

Table 3-20: Correlation between factors

		QUALITY	BUYING PREFERENCE	FARMING PRACTICES	INTENTION TO BUY	HEALTH	SUPPLIER	CONVENIENCE	PACKAGING
QUALITY	Correlation Coefficient	1,000	.460*	.621*	.361*	.540*	.186*	,147	.269*
	Sig. (2-tailed)		,000	,000	,000	,000	,019	,064	,001
	N	159	159	158	159	159	159	159	159
BUYING PREFERENCE	Correlation Coefficient	.460*	1,000	.451*	.185*	,154	,046	-,034	-,008
	Sig. (2-tailed)	,000		,000	,020	,052	,564	,675	,922
	N	159	159	158	159	159	159	159	159
FARMING PRACTICES	Correlation Coefficient	.621*	.451*	1,000	.347*	.464*	.181*	,116	,093
	Sig. (2-tailed)	,000	,000		,000	,000	,023	,148	,245
	N	158	158	158	158	158	158	158	158
INTENTION TO BUY	Correlation Coefficient	.361*	.185*	.347*	1,000	.388*	.176*	.286*	.374*
	Sig. (2-tailed)	,000	,020	,000		,000	,026	,000	,000
	N	159	159	158	159	159	159	159	159
HEALTH	Correlation Coefficient	.540*	,154	.464*	.388*	1,000	.264*	,051	.303*
	Sig. (2-tailed)	,000	,052	,000	,000		,001	,524	,000
	N	159	159	158	159	159	159	159	159

		QUALITY	BUYING PREFERENCE	FARMING PRACTICES	INTENTION TO BUY	HEALTH	SUPPLIER	CONVENIENCE	PACKAGING
SUPPLIER	Correlation Coefficient	.186*	,046	.181*	.176*	.264*	1,000	,028	.457*
	Sig. (2-tailed)	,019	,564	,023	,026	,001		,726	,000
	N	159	159	158	159	159	159	159	159
CONVENIENCE	Correlation Coefficient	,147	-,034	,116	.286*	,051	,028	1,000	,093
	Sig. (2-tailed)	,064	,675	,148	,000	,524	,726		,246
	N	159	159	158	159	159	159	159	159
PACKAGING	Correlation Coefficient	.269*	-,008	,093	.374*	.303*	.457*	,093	1,000
	Sig. (2-tailed)	,001	,922	,245	,000	,000	,000	,246	
	N	159	159	158	159	159	159	159	159

*indicate significant correlation coefficients (p<=0.05)

3.6 RELIABILITY OF RESULTS

The reliability and internal consistency of the data is measured by the Cronbach Alpha coefficient (α).

George and Mallery (2003:231) provide the following rules of thumb: "α > .9 – Excellent, α > .8 – Good, α > .7 – Acceptable, α > .6 – Questionable, α > .5 – Poor, and α< .5 – Unacceptable". While increasing the value of alpha is partially dependent upon the number of items in the scale, it should be noted that this has diminishing returns. It should also be noted that new factors was measured and scales/ factors with a Cronbach's Alpha higher than 0.5 were measured and accepted (Hair et al. 2005; NWU Statistical Consultation Services, 2015).

The reliability of the beef purchasing questionnaire is measured and summarised in table 3.21. The table shows the code of the influence, influence description, Cronbach Alpha coefficients, and the number of items.

Table 3-21: Reliability of the factors

CODE	DESCRIPTION	Questions	Cronbach's Alpha	N of Items
QOM	Quality of meat	Q1-Q5	0.76	5
BP	Buying Preferences	Q4,Q5	0.64	2
FP	Farming Practices	Q2,Q3,Q4,Q5,Q7,Q8	0.79	6
ITB	Intention to buy	All	0.54	5
HE	Health	Q2,Q3	0.71	2
SP	Supplier	Q4,Q5,Q6	0.52	3
CON	Convenience	All	0.50	3
PAC	Packaging	Q1,Q2,Q3	0.58	3

From the table it is clear that some of the factors did not return satisfactory reliability coefficients (above the lower 0.60 level of reliability), however, all were above the required

0.50 as suggested by the NWU Consultation Services (2015). This indicates that although these factors should be regarded as lower order reliable factors (Field, 2009:668), all of them should be retained as usable factors.

A low Alpha coefficient simply indicates that the factor is less likely to present itself if the study is to be repeated when subjected in a different application setting. Therefore, these factors (see the table below) should be interpreted bearing this limitation in mind.

3.7 IMPORTANCE OF RESEARCH VARIABLES

The questionnaire is designed on a 5-point Likert scale to measure beef purchasing behaviour and is based on the following options a respondent could have selected from the calculated index:

- Strongly disagree (1 which converts to 20%);
- Disagree (2 which converts to 40%);
- Neutral (3 which converts to 60%);
- Agree (4 which converts to 80%); and
- Strongly agree (5 which converts to 100%).
- Don't know

The mean values from the Likert scale (as converted into percentage format) summarizes the beef purchasing behaviour in table 3.22 and the factors are discussed in points 3.7.1 to point 3.7.8 below. The Likert scales mean values have been adapted into a percentage value to enhance the interpretation of the results that is 70% high level of agreement to a factor and ultimately the influence on purchase behaviour. The percentages are interpreted as follows (Bisschoff & Hough, 1995 in Bisschoff & Lotriet, 2008):

- < 60% : Lower importance; Dissatisfaction; Immediate action required
- 60%-75% : Important; Satisfaction; Develop to become excellent
- >75% : Very important; Very satisfied/Excellent; Maintain to stay on top

This study employs the percentage scale indicators (as indicated) on *lower importance, important* and *very important*

3.7.1 Quality of meat (QOM)

The mean scores of the quality of meat influence's questions set is summarized below in table 3.22 and indicates the importance of a question on beef purchasing of consumers.

Table 3-22: Mean scores of quality of meat

CODE	QUESTION	Mean %
QOM01	I normally buy meat according to the nutritional value on the pack	60.80
QOM02	I consider the origin (from what farm) of the meat	53.40
QOM03	I highly consider the preservatives added to the meat	63.00
QOM04	I highly consider the shelf life of the meat pack when buying meat from the shopping centres	71.60
QOM05	I normally look out for the roller stamp of the carcass (differentiate grade/age of the carcass)	64.60

Only question QOM02 falls below the lower importance level of 60% indicating that this question does not influence consumers on the quality of meat decision when purchasing beef. This means that South African consumers do not care to know on what farm the beef product they are intending to consume originated from. The mean score for Quality of meat is 62.68%.

3.7.2 Buying preferences (BP)

The mean scores of the Buying preferences influence's questions set is summarized below in table 3.23 and indicates the importance of a question on beef purchasing of consumers.

Table 3-23: Mean scores of buying preferences

CODE	QUESTION	Mean %
BP04	I prefer buying meat on R/kg than bulk	71.80
BP05	I prefer buying meat in bulk than in R/kg	56.60

Only question BP05 is below the satisfactory level of 60% indicating that consumers prefer to buy meat in small quantities instead of bulk. From the analysis it is clear that the majority of the buyers prefer to buy meat in smaller quantities (71%) while 56% of them do buy bulk. The

overlapping percentages mean that although some buyers do prefer to buy in smaller quantities, some of them also do buy in bulk at some time in their buying behaviour. The mean score for buying preference is 64.2%.

3.7.3 Farming Practices (FP)

The mean scores of the Farming practices influence's questions set is summarized below in table 3.24 and indicates the importance of a question on beef purchasing of consumers.

Table 3-24: Mean scores of farming practice

CODE	QUESTION	Mean %
FP02	I buy meat that is hormone free	60.40
FP03	I buy meat that is free range	61.40
FP04	I only buy meat that I know was produced in an animal friendly production environment	61.20
FP05	Ingredients	66.80
FP07	I only buy a specific breed of beef cattle	49.80
FP08	I only buy meat that's origin is in South Africa	61.60

Only question FP07 is below the satisfactory level of 60% indicating that consumers do not put a high premium on a specific breed of beef cattle when purchasing beef. They do however prefer to buy meat that is hormone free (FP02), has been reared in the veld (FP03), has been cared for and slaughtered in an animal friendly environment (FP04), has appropriate amount of protein, fat and other ingredients p/100g (FP05) and is produced in South Africa (FP08). The mean score for farming practice is 60.2%.

3.7.4 Intention to buy (ITB)

The mean scores for the intention to buy influence's questions set is summarized below in table 3.25 and indicates the importance of a question on beef purchasing behaviour of consumers.

Table 3-25: Mean scores of intention to buy questions

CODE	QUESTION	Mean %
ITB01	I don't compromise the quality of meat when having a braai	77.80
ITB02	I buy meat in accordance to family preference	79.20
ITB03	I am normally avoid to buy meat at the beginning or the end of the month or holiday seasons	56.80
ITB04	I normally read and evaluate meat advertisements critically and regularly	59.20
ITB05	My decision to purchase meat is influenced by advertising	55.40

Questions ITB03, ITB04 and ITB05 fall below the unsatisfactory level of 60%.

The low means indicates that these mentioned questions does not have such a great effect on consumers' intention to buy beef when purchasing Question (ITB04 and ITB05 indicates that advertising of beef products does not influence the consumers' intention to buy as well as the time of the month. The quality of the meat (ITB01) as well as the consumers' family preference has a great effect on his or intension to buy. The mean score for intention to buy is 65.68%.

3.7.5 Health (HE)

The mean scores for the health influence's questions set is summarized below in table 3.26 and indicates the importance of a question on beef purchasing behaviour of consumers.

Table 3-26: Mean scores of health

CODE	QUESTION	Mean %
HE01	I give myself enough time to buy meat because its quality is very important to my health	73.80
HE02	I trust and believe that eating healthy in terms of nutritional value displayed on the meat packaging can prolong life	71.20

All the questions are in the important category between 60-75% and thus indicate that these questions are important to consumers when purchasing beef. Consumers take their time to buy meat (HE01) and investigate the meat packaging for nutritional value information (HE02). The mean score for health is 72.5%.

3.7.6 Supplier (SP)

The mean scores for the supplier questions set is summarized below in table 3.27 and indicates the importance of a question on beef purchasing behaviour of consumers.

Table 3-27: Mean scores of supplier

CODE	QUESTION	Mean %
SP01	I don't buy meat from unknown outlets	79.60
SP02	I prefer buying meat from credited outlets	78.20
SP04	I buy neatly packed meat with labelling showing shelf life	85.40

All the questions are above the very important level of 75%.High means indicates that all the questions are extremely important to consumers when purchasing beef. Questions (SP01 and SP02) indicate that consumers are very intent to only buy from credited outlets with whom they are familiar with and question SP04 indicates that neatly packed meat is of utmost importance to the consumer. The mean score for supplier is a very high 81.06%.

3.7.7 Convenience (CON)

The mean scores for the convenience questions set is summarized below in table 3.28 and indicates the importance of a question on beef purchasing behaviour of consumers.

Table 3-28: Mean scores of convenience

CODE	QUESTION	Mean %
CON01	I buy whichever meat is available on the shelf	48.60
CON02	I only buy meat from shops close by	53.40
CON03	I always buy roller stamped meat	58.60

All the questions fall below the unsatisfactory level of 60% and the low means indicates that consumers either disagree or strongly disagree with these questions. The scores indicate that consumers will not just buy any meat that is available on the shelves (CON01) but rather buy specific meat cuts or portions as they have intended to do. Consumers will also buy their meat from stores that are situated further away from where they live (CON02) and do not purchase meat according to the roller stamp of the carcass (CON03). The mean score for convenience is 53.53%.

3.7.8 Packaging (PAC)

The mean scores for packaging questions set is summarized below in table 3.29 and indicates the importance of a question on beef purchasing behaviour of consumers.

Table 3-29: Mean scores of packaging

CODE	QUESTION	Mean %
PAC01	I can compare between superior and inferior meat quality after consumption of the meat	78.00
PAC02	Packaging of raw meat is important to me	84.00
PAC03	I prefer buying known brands of meat	84.70

All the questions are above the very important level of 75%. High means indicate that packaging is extremely important to consumers when purchasing beef. Question (PAC01) indicates that consumers place a high value on the consumption quality of meat they purchase and want meat to be neatly packaged (PAC02) and from a known brand (PAC03). The mean score for packaging is 82.23%. This is the highest mean scores of all the factors and indicates the extreme importance of this factor.

3.8 SUMMARY MEAN VALUES

The mean value of the beef purchasing behaviour is summarized in table 3.30 below and a figure 3.2.

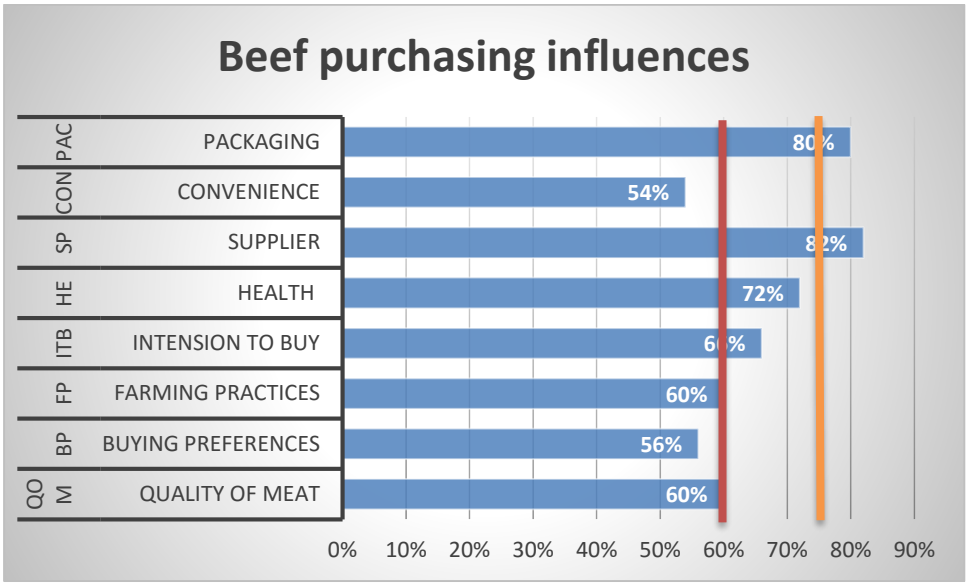
Table 3-30: Mean scores – Beef purchasing influences

CODE	DESCRIPTION	Mean
QOM	Quality of meat	60%
BP	Buying Preferences	56%
FP	Farming Practices	60%
ITB	Intention to buy	66%
HE	Health	72%
SP	Supplier	82%
CON	Convenience	54%
PAC	Packaging	80%

All the factors are summarised as per the interpretation of Bisschoff and Lotriet (2008). The factors, *Supplier* and *Packaging* are above 75% which make these the most important factors when purchasing beef*. Quality of meat, Farming practices* and *Intention to buy* is above the satisfactory level of 60% and is seen as important influences for beef purchasing.

Surprisingly the factors *Buying preferences* and *Convenience* are below the importance level of 60%. This information is visually displayed in Figure 3.2 below.

Figure 3-2: Beef purchasing influences



3.9 SUMMARY

This chapter serves as the descriptive and informative section of the study on consumers' beef purchasing behaviour as per the structured questionnaire to measure brand loyalty.

The results also address the validity of the questions pertaining to each buying behavioural factor, calculates the reliability coefficients report on the importance of the selected criteria and its measuring items, while finally, ranking the buying behaviour factors in order of importance. The chapter employed various statistical techniques to validate and then to measure the buying behaviour of the respondents with regard to beef. Meaningful results were achieved and in addition to identifying buying behavioural variables, the chapter also succeeded to rank these variables in importance after quantitatively measuring them.

Chapter four is the final chapter of this report, and it consists mainly of conclusions and recommendations whilst the chapter also identifies areas for future study. Chapter four concludes the research project.

CHAPTER 4 CONCLUSION AND RECOMMENDATIONS

4.1 INTRODUCTION

This chapter outlines the findings of this study and their relationship to the relevant theory based on conclusions and recommendations relating to the findings of Chapter three on the following aspects:

- Data validity and reliability;
- Beef purchasing factors; and
- Beef purchasing model of consumers.

Each section will be dealt with separately and conclusions and recommendations pertaining to that section are made in each of the sections.

The chapter concludes with a final overview of the study with recommendations for further use of the questionnaire developed for the measurements of key factors of beef purchasing behaviour of consumers.

4.2 CONCLUSION AND RECOMMENDATIONS

The conclusions and recommendations of this study are dealt with in the order that each conclusion is followed by its own recommendation. This means that *Conclusion 1*, for example, is addressed by *Recommendation 1*.

Regarding the validity of the questionnaire and the reliability of the data it can be concluded that:

CONCLUSION 1(a)

The Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) and the Barlett's Test of Sphericity are suitable measures to determine if exploratory factor analysis could be employed to analyse the data.

CONCLUSION 1(b)

Factor analysis was an appropriate statistical tool to use in this study. The factors that were extracted explained satisfactory variance in all nine factors. The factor analysis identified that within three influences two sub-influences existed.

CONCLUSION 1(c)

The data for this study are reliable as confirmed by the Cronbach alpha coefficients.

RECOMMENDATION 1

It is recommended that the questionnaire developed by Malindi and Bisschoff (2010) to measure customers' perception on the quality of red meat can be used to measure consumer's beef purchasing behaviour because it rendered reliable data that explained satisfactory variances to successfully analyse the buying behaviour of beef.

Regarding consumers' beef purchasing behaviour, the following conclusions can be made:

CONCLUSION 2

Not all the questions have been confirmed by the statistical analysis to be valid questions to measure beef purchasing behaviour of consumers. Some of the specific questions (for example, within buying preference question one "I buy meat from a known retailer") were discarded. This leads to the conclusion that although most of the questions were confirmed as valid questions, care should be taken to ensure that the omitted questions are not used in future (without revalidation) to measure consumers' beef buying behaviour.

RECOMMENDATION 2

It is recommended that the adapted questionnaire be used when consumers' beef purchasing behaviour is measured. If the omitted questions seems attractive options, revalidation thereof for the specific study is required before the inclusion of the specific data collected by the questions under suspicion.

CONCLUSION 3

Three of the beef purchasing factors have identified sub-factors within them. This leads to the conclusion that some factors are dualistic in nature, while others represent a single factor.

RECOMMENDATION 3

It is recommended that the results be interpreted in such a way that it incorporates the fact that some factors are dualistic in nature and that they represent two sub-factors. Each sub-factor should thus be interpreted individually to determine its importance and influence on beef purchasing behaviour.

Regarding the importance of the factors on consumers' beef purchasing behaviour, it can be concluded that:

CONCLUSION 4

All the beef purchasing factors are important and have grand means in excess of 54% (See Figure 3.3). However, the most important beef purchasing factor is *Supplier* while the least important one is *Convenience*.

RECOMMENDATION 4

It is recommended that suppliers focus their retailing actions on the more important beef purchasing factors first, as these would render the best results. Once these factors are well services, retail efforts can focus on those factors of lower importance. Addressing the factors of higher order importance would yield better returns on managerial inputs.

Finally, with regard to future research, it can be concluded that:

CONCLUSION 5

Although this study did have a favourable response of 159 respondents, it is still not representative on the South African population, and hence cannot be operationalised without care. It is thus concluded that this study is a valuable step forward to measure consumers' beef purchasing behaviour.

RECOMMENDATION 5

It is recommended that the study should be repeated on a larger scale so that the results obtained from this study, be either confirmed or further refined.

4.3 BEEF PURCHASING BEHAVIOUR MODEL

The summarised model to measure consumers' beef purchasing behaviour is shown in Figure 4.1.

Figure 4-1: Beef purchasing framework model

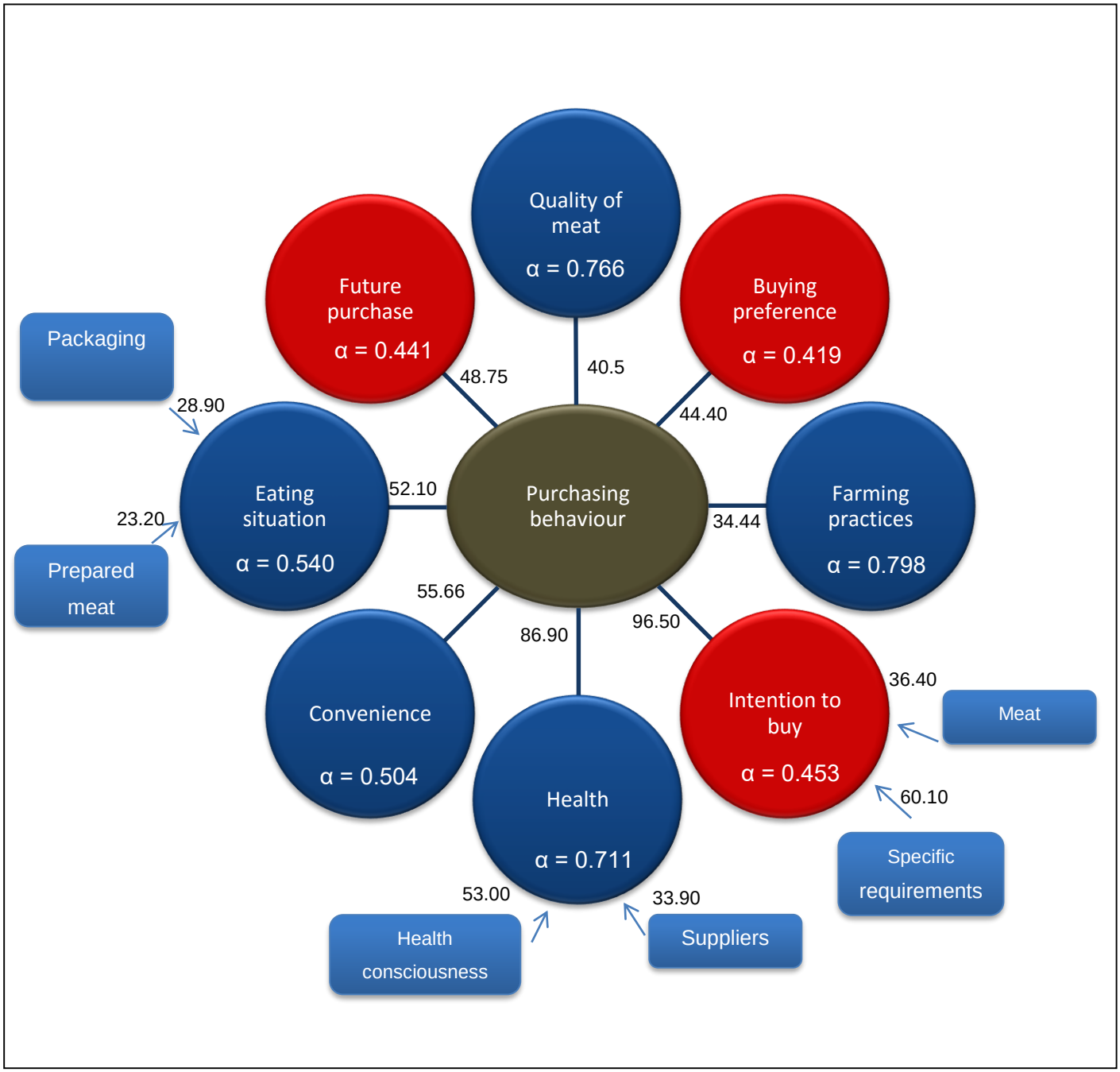


Figure 4-1 shows the different factors, their reliability coefficients and the variance explained by each factor. The figure also shows the sub-factors identified in the analysis. The factors possessing lower order reliability (α ≤ 0.50) (NWU Statistical Consultation Services, 2015) are portrayed in red in the figure. This signifies that although these factors are of lower reliability, they should be heeded with care in future studies of meat buying behaviour as they may not re-present themselves as important buying behavioural factors. However, the fat that they possess lower reliability does not disqualify them from this research. In practice it means that

these factors are important in this study, but could not be deemed important in similar repetitive studies, hence not possessing good predictive behavioural characteristics (Field, 2009:669.

4.4 AREAS FOR FUTHER RESEARCH

The following areas for future research have been identified:

- Continued research of consumers' beef purchasing behaviour on a larger scale to either confirm or refine the findings of this study;
- Comparative analysis between this study and the study of Malindi in order to determine which of the questions that measure each factor, are more important ones, and which of them are of a lower importance level. In this way the individual factors can be defined and measured more crisply.

4.5 SUMMARY

In this study the concept of consumer behaviour towards beef purchasing was researched with the aim to determine if the customers' perception towards red meat can be employed on purchasing decisions. If so, could it be applied as is, or does the model require some modifications to better fit purchasing behaviour.

Chapter One elaborated on the purpose of the study and emphasised the objectives of this study. Primary and secondary objectives were listed to set the required outcomes of this study. This chapter also provided an explication of the structure to be pursued in following chapters.

Chapter Two was based on an overview of the livestock industry of South Africa with specific reference to the red meat industry of which the beef industry is part through a literature study of what is known of this industry. The chapter elaborated on the literature of major beef cattle breeds, consumer behaviour and characteristics of South African beef.

Chapter Three covered the research methodology, statistical analysis and the discussion of the empirical results. The chapter elaborated on the methods used to gather the results and a comprehensive data analysis was done in the form of data validation, data reliability checks and importance of data.

Factor comparison was accomplished by means of Spearman's correlation coefficient while reliability and validity was tested by means of Cronbach alpha and Bartlett's test of sphericity. The appropriateness of factor analysis in this study was examined by Kaiser-Meyer-Olkin.

The final chapter, Chapter 4, draws conclusions, offers some recommendations and identified some areas for future research. The chapter also presented the final model for beef purchasing behaviour.

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ANNEXURES

ANNEXURE A – MEAT QUESTIONNAIRE

Questionnaire Beef purchasing

Demographics information

Age

20-30 ☐ 30-40 ☐ 40-50 ☐ 50-60 ☐ 60+ ☐

Ethnicity?

African ☐ Caucasian ☐ Indian ☐ Coloured ☐ Other ☐

Highest educational level?

Primary school ☐ High school ☐ University degree ☐ Technical college ☐

Household income per month?

<R5000 ☐ R5000 – R10 000 ☐ R10 000 – R20 000 ☐

R20 000 – R40 000 ☐ R40 000 – R80 000 ☐ R80 000 + ☐

What is your gender?

Male ☐ Female ☐

What is your marital status?

Single ☐ Married ☐ Divorced ☐ Widower ☐

Who buys the butcheries in the household?

I do ☐ My husband ☐ My wife ☐ Other ☐

Family size?

Alone ☐ < 5 ☐ 5-10 ☐ >10 ☐

	Statements to be evaluated	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree	Don't know
	BEFORE PURCHASING EVALUATION						
	Technical Meat Specifications						
1	I normally buy meat according to the nutritional value on the pack	1	2	3	4	5	
2	I consider the origin (from what farm) of the meat	1	2	3	4	5	
3	I highly consider the preservatives added to the meat	1	2	3	4	5	
4	I highly consider the shelf life of the meat pack when buying meat from the shopping centres	1	2	3	4	5	
5	I normally look out for the roller stamp of the carcase (differentiate grade/age of the carcass)	1	2	3	4	5	
6	I prefer readymade marinated beef	1	2	3	4	5	

	Intrinsic Attributes						
1	I buy meat from a known retailer	1	2	3	4	5	
2	I prefer buying meat from grocery stores than butcheries	1	2	3	4	5	
3	I prefer buying meat direct from my local farmer	1	2	3	4	5	
4	I prefer buying meat on R/kg than bulk	1	2	3	4	5	
5	I prefer buying meat in bulk than in R/kg	1	2	3	4	5	
6	I prefer buying meat that is neatly package from a well-known supplier	1	2	3	4	5	
7	I know which cut to buy ensuring accurate cost effective decision	1	2	3	4	5	
	What Do You Look For When Purchasing Meat?						
1	Freshness	1	2	3	4	5	
2	I buy meat that is hormone free	1	2	3	4	5	
3	I buy meat that is free range	1	2	3	4	5	

4	I only buy meat that I know was produced in an animal friendly production environment	1	2	3	4	5	
5	Ingredients	1	2	3	4	5	
6	Price	1	2	3	4	5	
7	I only buy a specific breed of beef cattle	1	2	3	4	5	
8	I only buy meat that's origin is in South Africa	1	2	3	4	5	
9	I like to buy meat that has an attractive packaging Appearance of the meat is critical when I purchase meat	1	2	3	4	5	
	Intension to Buy For Consumption						
1	I don't compromise the quality of the meat when having 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	
5	My decision to purchase meat is influenced by advertising	1	2	3	4	5	
	Health Conscious						
1	I don't compromise the quality of the meat I buy	1	2	3	4	5	
2	I give 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 outlets	1	2	3	4	5	
5	I prefer buying meat from credited outlets	1	2	3	4	5	
6	I buy neatly packed meat with labelling showing shelf life	1	2	3	4	5	
	Convenience						
1	I buy whichever meat is available on the shelf	1	2	3	4	5	

2	I only buy meat from shops close by	1	2	3	4	5	
3	I always buy roller stamped meat	1	2	3	4	5	
	AFTER PURCHASING EVALUATION						
	Eating Situation						
1	I can compare between superior and inferior meat quality after consumption of the meat	1	2	3	4	5	
2	Packaging of raw meat is important to me	1	2	3	4	5	
3	I prefer buying known brands of meat	1	2	3	4	5	
4	I prefer knowing the origin of the meat before buying it	1	2	3	4	5	
5	I prefer to remove fat layer before eating prepared meat	1	2	3	4	5	
6	I prefer to make a quick meal	1	2	3	4	5	
	Future Purchase						
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 PARTICIPATING

ANNEXURE B – LETTER OF CONFIRMATION OF LANGUAGE EDITING

DYNAMIC LANGUAGE & TRANSLATION SPECIALISTS
DLTS
CK 95.17794\73
Esselen str 71
Potchefstroom
2531
Tel: (018) 293-3046

7 November 2015

Re: Letter of confirmation of language editing

The dissertation "**Identifying consumer buying preferences of beef in South Africa"** by **Pieter Uys (12273384)** was language, technically and typographically edited. The citations, sources and referencing technique applied was also checked to comply with university guidelines. Final corrections as suggested remain the responsibility of the student.

Antoinette Bisschoff
Officially approved language editor of the NWU since 1998
Member of SA Translators Institute (No. 100181)