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## Identifying consumer buying preferences of beef

### Abstract

This study investigated the drivers which influence consumers' beef buying behavior. A validated questionnaire was used to collect the data and to evaluate consumer beef purchasing behavior. Exploratory factor analysis was employed to analyze the data while Cronbach alpha coefficient was used to calculate the reliability of the drivers. Satisfactory levels of reliability were recorded. The analysis identified eight drivers that influence the buying behavior of consumers when they purchase beef products. These drivers were: quality of the meat, buying preference, farming practices, intention to buy, health, convenience, packaging & presentation and future purchase. In addition, correlational analysis indicates that additional important attributes to buying behavior are supplier characteristics and packaging & presentation. The study culminates in a frame of reference for beef (and possibly other meat products) buying behavior analysis whilst it also provides a frame of reference for marketers to better understand their customers' behavior when they are selling beef. As a result it is recommended that retailers focus their actions on the more important beef purchasing drivers 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.

**Keywords:** beef cattle, buying behavior, consumer preferences of beef, packaging, farming practices, factor analysis.

**JEL Classification:** M30.

### Introduction

Historically South Africa's agricultural activities have been the backbone of the economy and growth. However, only after the discovery of the 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, p. 30). Olivier (2004, p. 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 view was recently confirmed by Agri South Africa during their annual Agriculture/Mining Conference (Mulder, 2013, p. 2).

At present (2015/16) the country's climate is ideally suited for livestock farming, hence the greater part of agriculture takes to animal production (80% of agricultural land). Although cereals and grains occupies 41.9% of cultivated land (with maize being the crop of choice on more than 8000 farms), most of these farms also incorporate animal farming as part of a mixed farming enterprise (SA, 2015).

The South African Treasury also indicates that agricultural production in South Africa consists of (SA, 2015):

- ◆ Commercial production: Approximately 82 million hectares consisting of 40 000 farming units produces almost 99% of formal agricultural produce. These farms are showing a

continuous trend of decreased farm numbers while the sizes of these farms increase (this means that bigger commercial farmers are buying out smaller farmers as smaller and less efficient farms are unable to remain profitable).

- ◆ Smallholder agriculture: Approximately 14 million hectares are farmed by 300 000 to 400 000 predominantly black farmers. This land is largely within the former homelands where good soil, water and infrastructure is lacking. Production efficiency is generally low.
- ◆ Subsistence agriculture: practised by about 4 million households.

The agricultural sector in South Africa contributes 2.2% (Media Club SA, 2013) to the Gross Domestic Product while 18.9% of South African households are involved (not all formally employed) in agricultural production. Employment in the agricultural sector sees that production of grains (51.7 per cent), fruit and vegetables (45.2 per cent), poultry (40.8 per cent) and livestock (51.5 per cent) accounts for the 10% formal employment in the country (SA, 2015).

### 1. Problem statement

Beef consumer demographics in South Africa are changing rapidly. The black middle class is expanding and have developed not only a taste for meat, but also for good quality cuts (Smit, 2010, p. 41). Philip (2015) adds that the black middle class increased with 41% 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, p. 48) that can be captured by breeders' associations in an effort to establish or brand their breed and increase their market share.

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This study aims to investigate the modern buying behavior of beef in South Africa, thus to determine how South African consumers purchase their beef. This can be achieved by identifying buyer behavioral drivers of beef consumers, whilst also measuring the importance consumers place on each driver in the purchase process.

## 2. Objectives

The primary objective of this research is to analyze the buying behavior of the South African beef consumer.

Serving the primary objective, the following secondary objectives were formulated, namely to:

- ◆ Identify what drivers consumers regard as important when buying beef;
- ◆ Compile a demographic profile of the buyers of beef in this study;
- ◆ Determine the correlations between buying behaviors and the demographic profiles of the beef buyers;
- ◆ Determine the reliability of the data; and to
- ◆ Determine the importance of the beef buying behavioral drivers of the South African consumer.

## 3. Literature review

**3.1. Beef farming in South Africa.** Considering the agricultural sub-sectors, the red meat industry is an important agricultural activity in South Africa. In this regard Meissner et al. (2013p, 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.

Cattle farming forms 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, p. 40).

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 with 28% of farmers farming with beef cattle as a secondary activity on top of their primary activity. Only 10% of beef cattle farmers are currently involved in exports, hence the beef production focuses on the domestic market (Van Zyl, 2014, p. 1). The South African demand for meat continues to increase. This is a result of growth in middleclass of the South African population, and thus associated shift in consumption towards beef products (Phillip, 2015). This increase in demand for meat is also evident in the increased demand for white meats, and although price sensitivity does an effect on demand for red meat (as substantiated by the 2015/16 drought in South Africa and subsequent sharp price increases of meat products). Poultry is projected to account for 50% of the additional meat consumed in the next decade, followed by pork (29%), beef (16%) and sheep (6%) (BFAP, 2014, p. 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. However the drought of 2015/16 may see prices remain higher due to farmers retaining cattle from the market to rebuilt stock numbers of lost cattle during the drought (Red Beef Levy, 2015). Figure 1 shows the South Africa’s beef production, consumption and price patterns since 2002 and also the projected numbers up to 2022. This figure also underpins the increased local beef demand for the next decade.

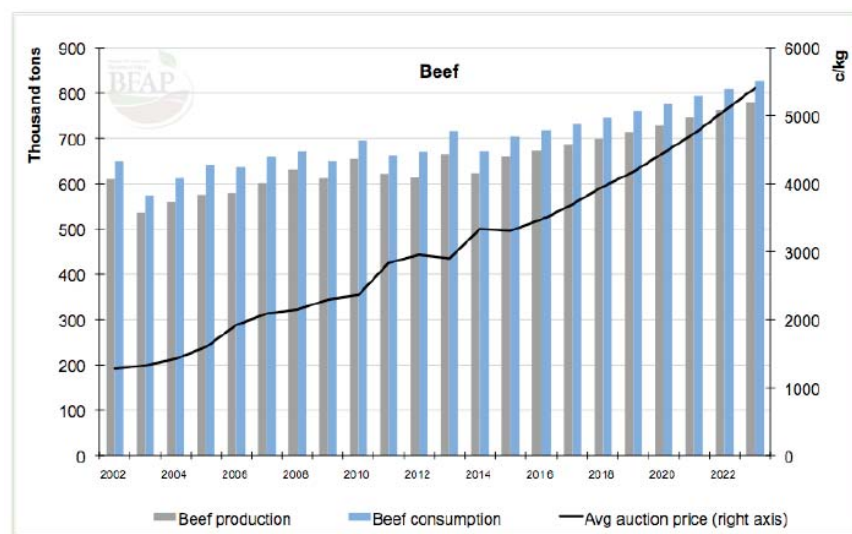


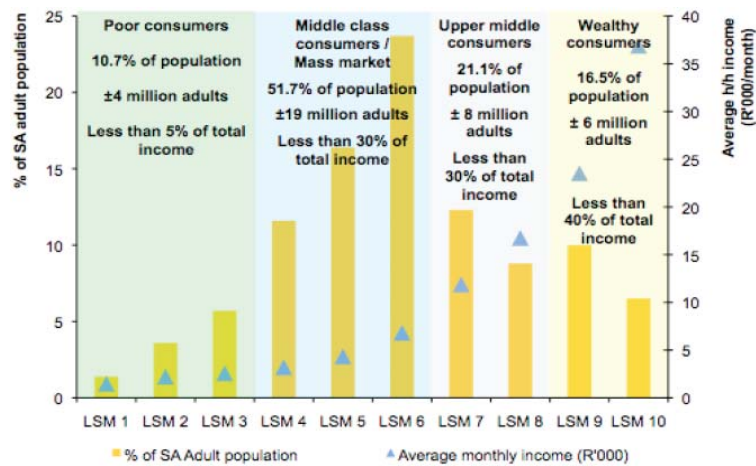
Fig. 1. SA beef production, consumption and price

Source: BFAP (2014, p. 59)

**3.2. Consumer behavior.** Research by Malindi (2010, p. 2) indicates that 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 meat buying behavior. Past experience with regards to a particular retailer or cut of beef also adds to consumer behavior in preventing or assisting in future beef purchase decisions. Malindi also states that the choice of meat is also influenced 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, Freshness and Safety are not met (Malindi, 2010, p. 1).

SA (2011, p. 4) states that "customer value is 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. The emerging black middle class or "black diamonds" are also a phenomenon affecting the South African beef demand positively. SA (2011, p. 4) further state that the South African market can be categorised and segmented through the Living Standard Measure (LSM) (see Figure 2). Lower LSM (below LSM4) spends a higher proportion of their disposable income on food when compared to higher income groups (LSM 5+ and above). Middle income groups tend to spend more on meat in proportion of their disposable income. Black middle class consumers are moving up 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.



**Fig. 2. The SAARF LSM segments: proportion of SA adult population and average monthly household income 2013**

Source: BFAP (2014, p. 91).

In their study, Taljaard et al. (2006), mention that disposable income and the price of beef related to other products, changes in size and structure of the population and changes in consumers' taste and preferences are the drivers that influence meat demand and buying behavior in South Africa.

Malindi (2010), in his study, 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.

- ◆ 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 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.
- ◆ 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 require quality, and demand good taste in food products.

On the other hand, in their study, Labuschagne et al. (2011) 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;
- ◆ confidence and assurance.

These researchers state that consumer marketing assists to build the positive image of beef and they postulated that branding as marketing tool could become an avenue for upper-market penetration in the red meat industry.

#### 4. Research methodology

The study consisted of a literature and empirical study of the beef industry of South Africa. The empirical study aimed to gain insight into the purchasing behavior of beef consumers. The data were collected by means of a validated structured questionnaire developed to measure beef purchasing

behavior of consumers. This questionnaire, developed by Malindi (2010), uses a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree) to measure buying behavior of beef. Data collection employed a random convenience sample where randomly targeted consumers in shopping malls, butcheries and various office buildings in the Gauteng province were requested to complete the questionnaire there and then pertaining to their beef purchasing behavior. A total of 170 questionnaires were distributed of which 159 (93.5%) fully completed questionnaires were received back. The data capturing and statistical analysis were done by the North-West University's Statistical Consultation Services using the specialised statistical software "Statistical Package for the Social Sciences" (SPSS, 2015 Version 22).

#### 5. Results

**5.1. Demographic profile of respondents.** The demographic profile of the respondents is summarized in Table 1.

Table 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     | 0.6        | 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 per month   |            | 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 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 gen-

der, 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' families (59.1%) were less than five members.

**5.2. Identifying buying behavioral drivers of beef.** The data were subjected to exploratory factor analysis to determine the buying behavioral drivers (that serves as the drivers) displayed by the consumers. A total of eight drivers were identified. These drivers are:

- ◆ Driver 1: Quality of the meat
- ◆ Driver 2: Buying preferences
- ◆ Driver 3: Farming practices
- ◆ Driver 4: Intention to buy
- ◆ Sub-driver 1: Meat portions;
- ◆ Sub-driver 2: Specific requirements.
- ◆ Driver 5: Health
- ◆ Sub-driver 1: Suppliers.
- ◆ Sub-driver 2: Health consciousness.
- ◆ Driver 6: Convenience
- ◆ Driver 7: Packaging and origin
- ◆ Sub-driver 1: Packaging.

- ◆ Sub-driver 2: Prepared meat.
- ◆ Driver 8: Future purchase

These eight drivers serve as the drivers for buying behavior. It is also important to measure if there are correlations between the buying behavioral drivers and the demographic profile of the buyers.

**5.3. Correlation coefficients between drivers and demographic variables.** The table below shows the Pearson correlation coefficients between the drivers and the demographical information as well as the correlation coefficients between the drivers. 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. Table 2 shows the significant correlations identified between demographic variables and the drivers.

Table 2. Correlation between drivers 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         |

Note: \*indicate significant correlation coefficients at  $p < 0.05$

From Table 2 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 indicates correlation coefficients between drivers. 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 the 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 0. Correlation between drivers

|                   |                         | 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       |
| 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       |

**5.3. Reliability of results.** The reliability and internal consistency of the data is measured by the Cronbach Alpha coefficient ( $\alpha$ ) and that coefficients of 0.70 are deemed *Acceptable* (George and Mallery (2003, p. 231) while coefficients of  $\geq 0.50$  could be accepted as lower order reliability coefficients (Hair

et al., 2005; NWU Statistical Consultation Services, 2015). The reliability of the beef purchasing questionnaire is measured and summarised in Table 4. The table shows the code of the influence, influence description, Cronbach Alpha coefficients, and the number of items.

Table 4. Reliability of the drivers

| Code | Description        | Questions         | Cronbach's Alpha | No. 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 drivers 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 drivers should be regarded as lower order reliable drivers (Field, 2009, p. 668), all of them should be retained as usable drivers. A low Alpha coefficient simply indicates that the driver is less likely to present itself if the study is to be repeated

when subjected in a different application setting. Therefore, these drivers should be interpreted bearing this limitation in mind.

#### 5.4. Importance of the buying behavioral drivers.

The mean value of the beef purchasing behavioral drivers are shown in Table 5.

Table 5: 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 drivers are summarised as per the interpretation of Bisschoff and Lotriet (2008); below 60% indicates a lower order behavioral driver, 60-74% indicate a medium to strong buying behavioral driver and 75% and above shows a strong to very strong buying behavioral driver. The drivers, Supplier and Packaging are above 75% which make these the most important drivers 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.

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Surprisingly the drivers Buying preferences and Convenience are lower order of importance buying behavioral drivers (below 60%).

#### Summary

In this study the concept of consumer behavior towards beef purchasing was researched with the aim to determine if the customers' perception towards red meat can be employed on purchasing decisions. From the theory a validated questionnaire was identified and applied to gather data. The reliability of the data was satisfactory while the lower order reliability coefficients also exceeded the 0.5 margin. A total of eight buying behavioral drivers were identified by means of factor analysis, indicating that some of the drivers are split-drivers (consisting of two sub-drivers). Correlational analysis indicated that positive relationships exist between Quality and Farming practices and Quality and Health, and Quality and Buying preferences exist. It is also noteworthy that the Supplier of the beef and the Health are regarded as the most important buying behavioral drivers.

The study is limited to the urban consumer in the specific geographical area, and readers are cautioned not to extrapolate or generalise the results. However, the study found that the questionnaire developed by Malindi (2010) is a valid questionnaire that collects reliable data in the beef buying behavior market. Hence it can be used with confidence in future studies.

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