5

FOOD PRODUCT ATTRIBUTES GUIDING PURCHASING CHOICE OF MAIZE MEAL BY LOW-INCOME SOUTH AFRICAN CONSUMERS: A QUANTITATIVE APPROACH

Sara S Duvenage[1, 2], Hettie C Schőnfeldt[3] and Rozanne Kruger[1, 4]

[1] Department Consumer Science, University of Pretoria, South Africa

[2]Department Hospitality, Tourism & PR Management, Vaal University of Technology, South Africa

[3]School of Agricultural and Food Sciences, University of Pretoria, South Africa

[4]Massey University – Albany Campus, Auckland, New Zeeland

The article presented in this chapter was prepared for publication in Development Southern Africa, and therefore abides to the prescribed editorial guidelines of the indicated journal.

ABSTRACT

The focus of this study was to ascertain the food product attributes prioritised by (very) low-income consumers during purchasing choice of their staple food, maize meal. Three informal and one urbanised settlement were included, where approximately 70, 55, 44 and 22 percent of the respective respondent groups were living below the household poverty line of R800/ month. Survey results obtained from 502 respondents reported the level of importance perceived for 14 different pre-determined food product attributes.

Satiety value and affordability were identified as the most important attributes of maize meal to (very) low-income consumers. Values perceived for taste, product acceptability and convenience were more closely matched between the consumers from the informal and formal urbanised settlements but the more affluent group indicated a higher level of importance for each food product attribute. For appearance, product quality, nutrient content, texture, product safety and brand loyalty, a higher and mostly significant similarity in value was indicated between the two groups of higher income, but also between the lower values of the two (very) low-income groups.

1. SETTING AND PROBLEM

The agglomeration of poor household slums on peripheries of cities is a feature of urbanisation in developing countries (Hubbard & Onumah, 2001:433). Approximately 28 million South Africans (66 percent) live in urbanised areas, of which the majority is accommodated in informal settlements. Urbanised informal settlements, also referred to as squatter areas, are situated within the boundaries of municipalities/ local authorities (Statistics South Africa (SSA), 2005a:1; Brits, 2002:2) and accommodate informal dwellings that do not conform to municipal building regulations. Inexpensive materials such as corrugated iron, cardboard, plastic and mud are often utilised to erect these structures (Engelbrecht & Du Rand, 2000:830).

The poverty levels in urbanised areas are increasing worldwide (Haddad et al., 1999:1891). In South Africa (SA) residential location is one of the important factors in the determination of income distribution (McDonald et al., 2000:423). It is therefore not uncommon that the inhabitants of urban squatter shacks experience severe poverty levels (Higgs 2007:1; Hubbard & Onumah, 2001:433; United Nations Children's Fund (Unicef), 1998:4). These areas often contain a sizeable population of which only a few inhabitants contribute to their own food needs through food production. In consequence, most of the urbanised consumers depend on the market system for their food supply (Hubbard & Onumah, 2001:433; Den Hartog et al., 1995:24, 32). The cosmopolitan character of urban populations often culminates in a complex diversity of food needs influenced by ethnicity, religion and income background (Hubbard & Onumah, 2001:434).

The reality in which these consumers live includes constraints such as limited local shopping and transport facilities, which create a problem of physical access to the range and quality of food products that are commercially available in the marketplace. Consequently, these consumers often patronise poorly organised and resourced micro-traders (e.g., spaza shops) to make their purchases. In comparison with the large retail chains, food prices can be as much as double in price. This aggravates the problem of purchasing appropriate food, forces the living standards even lower and influences even further the economising practices followed by the poor (Leibtag & Kaufman, 2003:1-2; Watkinson & Makgetla, 2002:45-6; Fisher, 1999:3; Dowler, 1997:5).

Poor households economise on their food purchases to limit spending (Leibtag & Kaufman, 2003:1) in order to meet various needs and wants with their scarce resources (Steward & Blisard, 2008:1). Although a larger share of the income in poorer households is allocated to food than is the case in wealthier households (Nord et al., 2007:1), low-income consumers

usually spend less in total on food purchases (Stewart & Blisard, 2008:1). Food choice is influenced by individual knowledge on what constitutes a healthy diet or by cultural practice, but the critical determinants for (very) low-income consumers are the amount of money available to allocate to food, the type of food readily available in local shops, and the cost of the food (Dowler, 1997:2).

A direct link has been found between increase in income and demand for various food product attributes. Higher income culminates in a demand for luxuries such as convenience and health-promoting foods (Painter, 2007:14; Hughes, 2002:10). As the low-income consumers face monetary restrictions that reflect in food choice, they do not want price benefits built into the food products they purchase (Hughes, 2002:11).

Because of a cost barrier to increased food consumption, low-income consumers cannot afford to make mistakes during purchasing. Concerns experienced by low-income consumers in their constrained financial situation also warrant attention to possible consequences, such as risk-aversion and possible wastage and spoilage when trying new kinds of food products (Treiman as quoted by Fisher, 1999:2). Wastage needs to be prevented at all costs and no food is purchased that will possibly not be eaten, as no margin for error exists. Purchases are made according to what experience has proven will be consumed, if not enjoyed, and sacrifices are made for taste as needed (Walker et al., 1995:8).

A product comprises core and augmented characteristics. Core characteristics, such as taste, quality and nutrient content, provide the impetus for the purchasing decisions made by consumers, while the augmented product characteristics indicate product guarantees and additional benefits. Consumers will not give attention to augmented characteristics if the core characteristics have not been considered (Painter, 2007:14). The products purchased by target consumers display a mix of quality attributes reflecting both budget and non-monetary preferences of importance within their own reality (Hughes, 2002:3, 5).

Low-income consumers consider numerous factors during the purchase selection process of a food product, including quantity, price, quality, and nutritional content (Leibtag & Kaufman, 2003:1). The functional, technical and emotional benefits of products are carefully compared during the choice process (PSD, 2007:1). The most important factor during food purchasing, however, is to reconcile cost with the taste and attitude of the family, which leaves nutrition as a subsidiary consideration (Walker et al., 1995:8).

The choices that consumers make within a food product category are influenced by the consumer's prior knowledge of the category (Alba & Hutchinson 1987 as quoted by Malaviya & Sivakumar, 1998:95). A high level of product knowledge thus creates the option of making meaningful product choices based on quality assessment for value maximisation. On the other hand, consumers regularly make product decision choices within a product category by using trade-off contrasts (Malaviya & Sivakumar, 1998:95-6). During decision-making, consumers make a trade-off between taste, preference, and quality factors within their own specific perceptions and reality (Leibtag & Kaufman, 2003:1). Situational influences include aspects such as the financial condition of the consumer, household size and urban/ rural setting, while individual characteristics relate to aspects such as education, emotions and perceptions. The cumulative effect of these aspects is of importance to food product producers as the impact thereof relates to the consumer perception of the product (Von Alvensleben, 2002:218, 223).

During product selection, consumers often rank food product criteria in order of importance to them and then select the product that performs best on the attribute (cue) perceived as most important (lexicographic decision rule) (Todd & Dieckmann, 2004:2, 6). If a decision is tied, the next attribute of most importance to the consumer will guide the choice outcome. The search for cues stops as soon as a decision can be made based on the presence of one discriminating cue (Hawkins et al., 1998:562-3). The application of this simple process, requiring an integration of information, has been indicated as both accurate and frugal in use of information (Todd & Dieckmann, 2004:7).

When the target population follows this decision-making rule, the importance awarded to specific food product attributes is of key value. The presence of these attributes, indicated as target attributes, indicate the superiority of a product (brand) to consumers in contrast with other product/s (brand/s) (Malaviya & Sivakumar, 1998:98). Even when involved in trade-offs, the presence of the target attribute/s increases attraction. These target attributes then become key criteria in providing a "quality product" to the specific consumer group (Hart, 2004:224). Consumers purchase products to obtain the highest level of satisfaction as related to the combination of attributes, perceiving the value of the product as the sum of the values of each (target) attribute it contains (Round & Tustin, 2004:4, 6). Desirable product attributes can therefore be perceived as buying goals (Hornibrook & McCarthy, 2004:10).
The "voice of the consumer" is reported by a hierarchical set of "customer needs" where each need, or set of needs, is depicted by a priority value. These values indicate the importance of the specific attributes that meet the needs of the specific consumer (Hart, 2004:224), and are reported in terms of (food) product attributes (Kaul & Rao, 1995:296).

The characteristics of consumers influence what satisfies them (Mittal & Kamakura, 2001:132). In application, perceptions of what product quality means incorporates different viewpoints. Usually, a quality specification is developed as a guideline to create a common understanding of quality standards between suppliers and users. In order to be meaningful, these specifications need to be realistic, attainable and sufficiently strict (Fowler & Priestley, 1990:54). This information regarding preferred attributes can guide food product producers in a less biased manner to exceed or at least equal the performance of competitors' products. Performance on the lesser criteria is not of importance if outstanding performance is maintained on the most important criteria (Hawkins et al., 1998:562-3). For consumers to be fully engaged during the purchasing process, the specific attributes that add value to a particular product need to be integrated and to offer a point of difference from the competition (Groves, 2003:17).

Although many substitutable products within each of the broad food product categories are available for purchase consideration to meet spending constraints (Leibtag & Kaufman, 2003:1), it is not clear if the needs of (very) low-income consumers for specific food product attributes are met. Very often, more affordable products are just watered-down versions of the original product, containing cheaper and /or lower quality ingredients.

For the delivery to the user of real and unique benefits that meet consumer needs better than competitive products do, provision of higher relative product quality by solving the problems consumers have with the competitive product, reduction of total cost for the consumer and innovation represent key issues of core importance. A clear description of the target market, which includes the needs, wants and preferences of the target consumers, plays an important role in defining the product concept, specifications and requirements during product development (Cooper, 1990:27).

Low-income consumers, also known as "the next billion", constitute the world's largest untapped consumer segment, contributing more than US$1 trillion in expenditure a year (PSD, 2007:1). In South Africa, a market expenditure of ZAR129 billion (US$12.6 billion) is reported for these consumers (Prahalad & Hart, 2006:1).

Food consumption patterns (and therefore food product attributes needed) differ in South Africa between consumers with middle and high income (modern economy) and those with (very) low income (marginalised economy) (ACNielsen 2005:1; Bureau for Food and Agricultural Policy (BFAP), 2007:52). Although low-income households are representative of 35 percent of the South African consumers, this group contributes only 22 percent of the total spending (ACNielsen 2005:1).

With an average monthly income of only ZAR1222 (US$120) per household of five (ZAR244 (US$24)/capita/month (ACNielsen 2005:1; Oldewage-Theron et al., 2006:800), or as little as R695 (US$68) (ZAR139 (US$14)/capita/month (Amuli, 2006:57), the importance of food product attributes that meet the needs of (very) low-income consumers in their main food purchase, starch-based staple foods, is undeniable.

Accordingly, the purpose of this study was to identify and compare the food product attributes that low-income consumers from four urbanised settlements, of which three were informal, perceive as important in meeting their purchasing needs for their starch staple food, maize meal.

2. METHODS

2.1 Surveys

In a prior baseline investigation conducted amongst (very) low-income consumers in an urbanised informal settlement, fourteen food product attributes were identified as possible contributors to the value that (very) low-income consumers perceive as important during their purchasing choice of maize meal (Duvenage, 2008). These attributes are in descending order of perceived importance: satiety value, affordability, packaging size, value for money and taste (followed by acceptability, appearance/ colour, product quality, convenience/ ease of preparation, nutrient content, texture, product safety/ shelf life, brand name loyalty/ satisfaction and household structure).

In order to substantiate the external validity of the original baseline findings, a more extensive explorative survey was conducted in three urbanised informal settlements (Boipatong, Eatonside and Alexandra). These areas are in the proximity of a town (Vanderbijlpark), a city (Vereeniging) and a metropolis (Johannesburg) respectively, and meet the criteria for being urbanised and informal (Brits, 2002:2; SSA, 2005b; Engelbrecht & Du Rand, 2000:830; Oldewage-Theron et al., 2005:22-4). The survey was further extended to include a directly adjacent urbanised metropolitan, but not informal, area (Tsutsumani) (SSA, 2005b). All these settlements are situated within the broader Johannesburg - Vaal geographical area of Gauteng, South Africa. Demographic information is available for all four settlements (SSA, 2005b) which supported the relation of survey results to the different geographical settings, average household income and the generalisation of results (Torjusen et al., 2001:214).

2.2 Procedures

A purposive sample of at least 110 marginalised consumers classified within the SU-LSM 1 level for average monthly household income (≤R1003) (US$98) (South African Advertising Foundation (SAARF), 2006), was recruited within each of the four settlements. Volunteers were screened on the basis of habitual consumption of maize meal as staple food (at least twice /day) and being the main food purchaser for that particular household. As consumers were reluctant to provide information regarding household income in some instances, respondents were screened on the basis of living in shacks (informal settlements) and/ or being unemployed (in the formal settlement). Information on average household income was obtained from the 2001 census survey for the specific areas, more recent census data not yet being available (SSA, 2005b).

Utilising a format similar to the questionnaire of the baseline investigation but incorporating only the fourteen food product attributes indicated as of highest importance in that study, an extended survey was conducted within the four identified areas (n = 502). As before, the responses were reported by a six-point hedonic rating scale, recording the importance of the respective food product attributes to the target consumers during the purchasing choice of their starch staple food, maize meal. The options for rating each of the listed food product attributes on the scale included the following: don't know, not important, slightly, fairly, and very important to extremely important. The data were gathered by trained field workers during one-on-one interviews. An explorative approach was followed in this study in order to identify/ imply trends and differences.

For further clarification of the meaning of the terminology used and to support consistency during comparison of findings (Cardello, 2005:203-4), one focus group was conducted within each of the four settlements (Babbie & Mouton, 2002:123; Cooper & Schindler, 2003:231-2). The aim was to describe and compare the inherent meaning and content of the respective food product attributes to identify differences in meaning for validation purposes. This information was also applied to partially confirm the results of the survey.

2.3 Data analysis

Applying quantitative statistical procedures, a frequency table incorporating three categories (1=don't know + 2=not important; 3=slightly important + 4=fairly important; and 5=very important + 6=extremely important), was prepared from the responses accumulated from each of the informal settlements and the urbanised metropolitan area. To facilitate the comparison of the importance of the different food product attributes to most of the respondents in each of the

participating settlements (Berk & Carey, 2000:123-8), line graphs were developed to guide the explorative process.

The strategy followed incorporated the viewing of the graphs to suggest comparison of findings between groups for the same food product attribute, and to test for comparison of two (or more) percentages. As this study followed an exploratory approach, formal multiple comparison statistical procedures were not used. Instead, a mild 10 percent level of significance was applied to pairwise comparisons. It was important not to use extreme criteria in indicating a trend/ difference, as the aim was to explore and formulate (De Wet, 2008). When the standard error of difference between two scores (from different respondent groups) for the importance of a specific food product attribute is calculated and then compared to the norm for comparison (standard error of difference x 1.64), it can be determined whether it is possible to distinguish between the responses.

For the qualitative data, concept analysis was applied using a descriptive style (Punch, 2005:205; Robson, 2002:83). Operational definitions were compiled and compared between the four different groups (Marumo, 2008). The information was applied to screen the data gathered during the quantitative survey for this study, to ensure consistency of meaning for the same term among the groups (validity) and to support comparability. These results will be reported as a separate article.

3. RESULTS AND DISCUSSION

3.1 Demographic profile

In South Africa, areas are defined in terms of geographical locality and described in the context of ‘main place’. The context is further indicated by the size of the locality population and the population density (Table 1) (Brits, 2002:5). The population density of the two informal settlements near a town and a city, Boipatong and Sebokeng Unit 6 (incorporating Eatonside), and the metropolitan formal settlement Tsutsumani, all ubanised, are quite similar. Of interest is the fact that the density within the metropolitan informal settlement is about 6.7 times higher (SSA, 2005b). Of further importance are the enumeration area type and the kind of dwelling predominant within the specific area (Table 2) (SSA, 2005b; Brits, 2002:7). From the information displayed in Tables 1, 2 and 3, it is clear that the major differences between the respondent settlements are based on geographical area, population density, average household income and availability of commercial enterprises in the area. From maps of the respective settlements, the observation can be made that Eatonside (a sub-section of Sebokeng Unit 6) has no noted business enterprises nearby, Boipatong has a few within

TABLE 1 Geographical description of the urbanised settlements

District community	Municipality name	Main place	Subplace	Locality population	Area size (km^2)	Population density (people/ km^2)
Sedibeng District Municipality	Emfuleni	Boipatong	Boipatong[2]	3 840	0.56	6 901.8
City of Johannesburg Metropolitan	City of Johannesburg Metro	Sebokeng	Sebokeng Unit 6[3]	15 588	2.28	6 841.4
City of Johannesburg Metropolitan	City of Johannesburg Metro	Alexandra	Alexandra[4]	21 613	0.48	45 326
City of Johannesburg Metropolitan	City of Johannesburg Metro	Alexandra	Tsutsumani[5]	4 900	0.76	6 405.7

[1]SSA 2005b SP_code 70401001[2], 70406015[3], 77401001[4], 77401003[5]

TABLE 2 Dwelling types predominant in the settlements

Type of dwellings[1,2]	Settlements				
	Sebokeng Unit				
	Boipatong[1]	6[1]	Eatonside[3]	Alexandra[1]	Tsutsumani[1]
Formal	**%**	**%**	**%**	**%**	**%**
House or brick structure on a separate stand or yard	30	36		21	91
Flat in block of flats	0	0		2	6
Town/cluster/semi=detached house (simplex; duplex; triplex)	0	2		0	0
House/flat/room in back yard	1	4		1	0
Subtotal	**31**	**42**		**24**	**97**
Informal					
Traditional dwelling/hut/structure made of traditional materials	2	2		1	2
Informal dwelling/shack in back yard	3	18		10	0
Informal dwelling/shack NOT in back yard	65	38		58	0
Room/flatlet not in back yard but on shared property	0	1		2	0
Caravan or tent	0	0		1	0
Total % of informal dwellings[2]	**70**	**59**	**90**	**72**	**2**
Not applicable (living quarters are not a housing unit)	0	0		4	0
Total of dwellings	**1 217**	**4 128**	**1 260**	**8 432**	**1 448**
Enumeration area type[1]	**Informal settlement**	**Informal settlement**	**Informal settlement**	**Informal settlement**	**Urban settlement**

[1]SSA, 2005b

[2]Engelbrecht & Du Rand, 2000:830

[3]Oldewage-Theron et al., 2005:316-7

walking distance, while the inhabitants of Alexandra and Tsutsumani experience a far greater ease of access to shops (SSA, 2005b). The implied importance of this situation is related to transport costs to reach shops and the availability of variety during purchasing choice. Unfortunately, no data is available for the prevalence of spaza shops in the selected areas (SSA, 2005b). In Table 2, the predominance of dwellings that do not conform to municipal building regulations (Engelbrecht & Du Rand, 2000:830) in the informal settlements (70, 90 and 72 percent respectively), stand in stark contrast to the situation in the urban settlement (2 percent) (SSA, 2005b). Of notable interest is the close similarity in geographical setting between Alexandra and Tsutsumani, with differences in the average household income (Table 3) and the type of dwellings (Table 2).

The first section of Table 3 indicates the distribution of the households in the different settlements according to household income. In Boipatong, the level of no income is indicative of the situation of about half of the population (51 percent), while 70 percent of the population in total live below the household poverty line of R800/ month/ household. Having an average of three members/ household, the implication is that approximately 51 percent of this population (very poor) exist on less than R200/ capita/ month, and between19-39 percent (poor) on R201 to R333/ month (SSA, 2005b; SSA, 2000:6). In Eatonside, 58 percent of the population have about the same income/ capita as Boipatong, and therefore live under the poverty line (SSA, 2000:6). In comparison, substantially fewer households were indicated as very poor or poor in Alexandra (perhaps because more employment opportunities are available?) and even fewer such cases were indicated in Tsutsumani. With regard to the education level, it is noticeable that the distribution between the settlements for the lower levels of education is quite similar, but the indication of grade 12 and higher qualifications is much stronger in the areas with higher income (Table 3).

3.2 Meanings of the food product attribute terminology

From the focus groups conducted, no clear differences were indicated between the meanings of terms perceived for the respective food product attributes (Marumo, 2008). However, occasional differences occurred between the groups, reflecting the depth of importance of a food product attribute, for example, purchasing the cheapest maize meal for the quantity that can be afforded versus purchasing of the cheapest product from the set of brands that meet the consumers' needs for quality. In most cases, a link was demonstrated between the differences in household income and the perceived meaning of the terminology. A separate article will be published to report the results of this study in full.

TABLE 3 Situation analyses for household income and education level

			Settlements				
			Boipatong[1]	**Sebokeng Unit 6[1]**	**Eatonside[3]**	**Alexandra[1]**	**Tsutsumani[1]**
Annual household income (R)[1]		**Poverty indicator[2]**	**%**	**%**	**%**	**%**	**%**
SU-LSM 1	No income	Very poor <R600 /month	42	29		28	14
SU-LSM 1	1 – 4 800	Very poor <R600 /month	9	10		5	8
SU-LSM 1	4 801 – 9 600	Poor = R600 - R1000 /month	19	16	58	11	7
SU-LSM 1, 2, 3	9 601 – 19 200	Not clear	20	19		27	27
Very poor			**51**	**39**		**± 33**	**± 22**
Poor			**>19 - <39**	**>16 - <35**	**58?**	**> 11 - <38**	**> 7 - <34**
Total living below household poverty line of R800 /month[3]			**70**	**55**		**44**	**29**
Household size[1]			3	4	5	3	3
Approximate income / capita/ month			51% <R200 19-39% <R333	39% <R150 16-35% <R250	58% <R200	33% <R200 11-38% <R333	22% <R200 7-34% <R333
Literacy level (highest completed or in process) [1]			**%**	**%**		**%**	**%**
No schooling			14	10		10	12
Primary school Grade 7			10	7		7	5
High school Grade 9			8	6		8	6
High school Grade 12			6	13		17	22
Post-grade 12 qualification			1	2		2	4
Total population			100	100		100	100

[1]SSA, 2005b

[2]SSA, 2000:6

[3]Oldewage-Theron et al., 2005:317

3.3 Rating of the importance of food product attributes in meeting the needs of (very) low-income consumers

The level of importance (need) that the respondent groups attached to the respective food product attributes, were calculated. As the “very important + extremely important” category reports the results for most of the respondents for each of the food product attributes, further discussion will pertain only to this category (Table 4).

TABLE 4 Ranked importance of food product attributes by (very) low-income consumers

	Score of food product attribute importance			
Food product attributes	**Boipatong**	**Eatonside**	**Alexandra**	**Tsutsumani**
	n = 140	N = 130	n = 131	n = 101
	%	**%**	**%**	**%**
Satiety value	94	92	92	90
Affordability	86	78	76	82
Packaging size	86	72	73	88
Value for money	73	80	66	69
Taste	84	82	82	91
Acceptability	81	83	78	86
Appearance/colour	80	76	90	89
Product quality	73	77	86	86
Convenience/ease of preparation	80	79	81	87
Nutrient content	59	65	81	87
Texture	69	72	89	83
Product safety/shelf life	69	62	86	80
Brand name loyalty/satisfaction	69	61	74	82
Family structure	76	79	83	82

Reported as a line graph (Figure 1), the respective values allocated to the different food product attributes by the different respondent groups for the indicate category were clearly depicted.

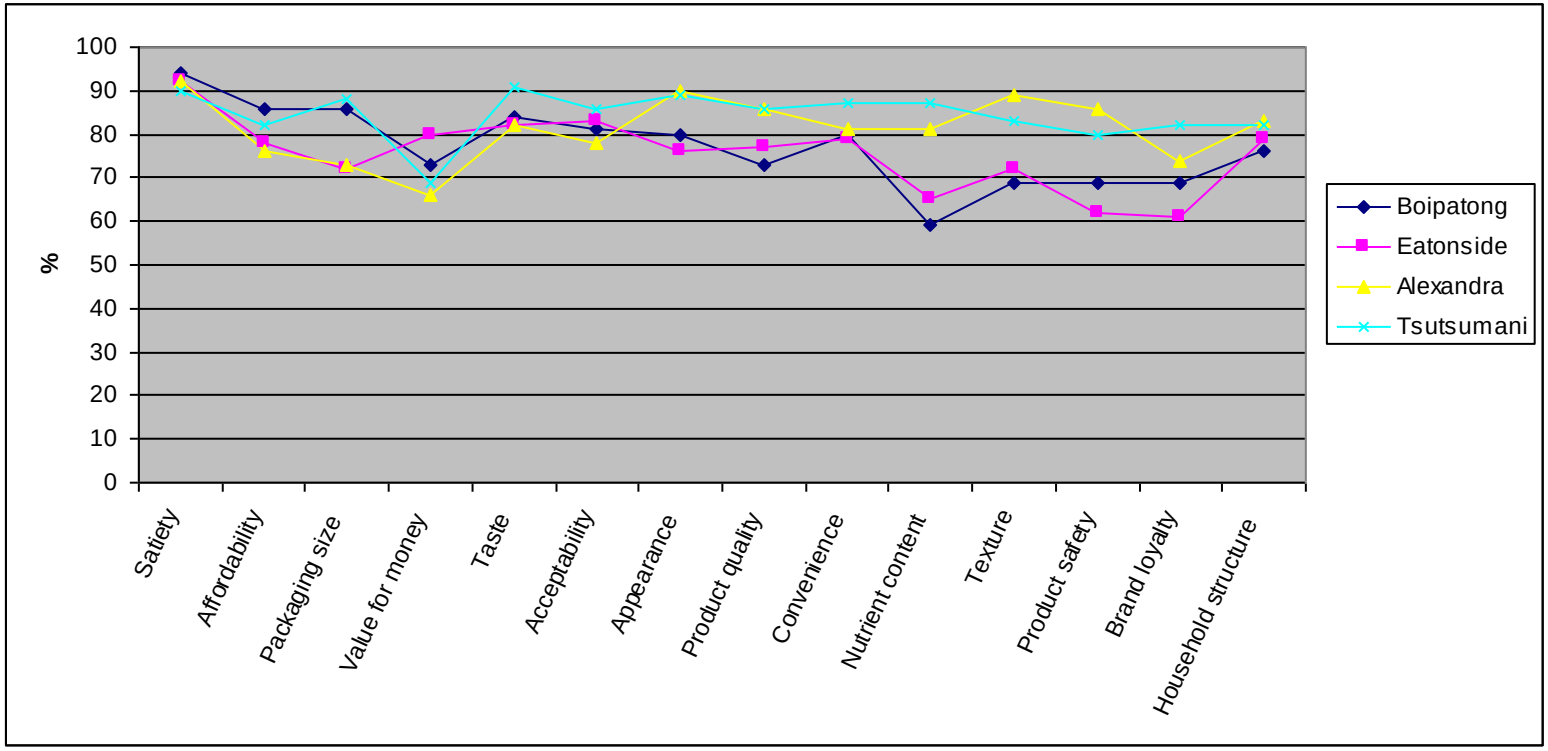

FIGURE 1 Comparison of the importance of food product attributes to (very) low-income consumers

From viewing Figure 1 and based on an approximation approach (Porkess, 2005:9), the following comparisons were suggested as reasonable (Table 5):

TABLE 5 Suggested comparisons between the ratings of the different respondent groups

Food product attribute	Suggested comparisons
Satiety value	The four respondent groups do not differ
Affordability	The four respondent groups do not differ
Packaging size	Alexandra and Eatonside display a lower rating when compared to the rating of Boipatong and Tsutsumani. The positions of Alexandra and Eatonside do not differ, as is the case with Boipatong and Tsutsumani
Value for money	The four respondent groups do not differ
Taste	Alexandra, Boipatong and Eatonside are the same, while Tsutsumani is higher
Acceptability	The four respondent groups do not differ
Appearance	Boipatong and Eatonside are the same, while Alexandra and Tsutsumani are the same, but higher
Product quality	Boipatong and Eatonside are the same, while Alexandra and Tsutsumani are the same, but higher
Convenience/ ease of preparation	Alexandra, Boipatong and Eatonside are the same, with Tsutsumani higher
Nutrient content	Boipatong and Eatonside are the same, while Alexandra and Tsutsumani are the same, but higher
Texture	Boipatong and Eatonside are the same, while Alexandra and Tsutsumani are the same, but higher
Product safety/ shelf life	Boipatong and Eatonside are the same, while Alexandra and Tsutsumani are the same, but higher
Brand loyalty	Alexandra and Boipatong are about the same, with Eatonside the lowest and Tsutsumani the highest
Household structure	The four respondent groups do not differ

The significance of difference between the different combinations of respondent scores was calculated for all the food product attributes by comparing the maximum with the minimum. The results contributing to the research argument were reported in summary in Annexure 1.

No significant difference existed between the importance indicated by the four respondent groups regarding the need for satiety value, product acceptability, convenience and household structure. The implication is that neither average household income, nor geographical area, lessens the importance of these food product attributes as food product (maize meal) quality indicators for (very) low-income consumers. For taste, no significance in difference was indicated between the values reported by the three informal settlements, but these values were significantly lower than for the formal settlement. The values reported between the two poorest informal settlements (Boipatong and Eatonside), and between the more affluent informal (Alexandra) and formal (Tsutsumani) settlements respectively, indicated no difference, but were significantly different between the two sets of groups. The values for the former were consistently lower than for the latter for the food product attributes of appearance, product quality, nutrient content, texture, product safety and brand loyalty.

Overall, satiety value has been indicated as the food product attribute of highest importance to the informal settlements (94, 92, 92 percent respectively), and a close second place for the formal settlement (90 percent versus 91percent for taste) (Table 4). This aspect is important to (very) low-income consumers as satiety value is related to energy, absence of hunger and a sense of well-being (Marumo, 2008) reported as …'you know you are going to be all right' (Dobson et al., 1994:32).

The difference in the importance allocated to affordability and packaging size by the two (very) low-income groups, Boipatong and Eatonside, is of interest. Boipatong, one of the poorest informal settlements, regards affordability (86 percent) as of significantly more importance than do the other respondent groups. It is not clear why the other poorer informal settlement (Eatonside) regarded affordability as of lesser importance (78 percent), but it can be speculated that affordability is perceived to be linked to packaging size (refer to discussion on packaging size). It is recommended that, based on the supportive results for this food product attribute from the specific focus group and the baseline study (96 percent), that the value reported by Boipatong should be seen as indicative of the importance of this food product attribute to (very) poor income consumers. Both Boipatong (86 percent) (very low-income) and Tsutsumani (88 percent) (higher income) indicated packaging size as being of high importance. Of interest is the fact that the results from

both focus groups indicated that it is of importance to have no wastage, and that the amount purchased corresponds only to what is to be consumed within an expected period. On the other hand, the focus group conducted in Eatonside reported that you purchase the amount of maize meal for which money is available, with further purchasing when more money is available (Marumo, 2008). The latter approach implies that packaging size is not optional, as you can purchase only the size for which money is available. In the baseline study, the perception of the importance of packaging size was indicated as 91 percent, which supports the findings from Boipatong in this study.

No significant difference was indicated in the importance that the two poorest informal settlements allocated to the value for money (Boipatong, 73 and Eatonside, 80 percent). These figures were also significantly higher than those reported by the more affluent settlements, which indicate the relative importance of this food product attribute to the (very) low-income consumers.

No significant difference was indicated between the respondent groups in the importance indicated for food product convenience, although the more affluent Tsutsumani attached a substantially higher importance (87 versus 80, 79, 81 percent respectively) to this attribute.

The food product attributes related to economic factors include satiety value, affordability, packaging size, value for money, convenience and household structure. For all of these food product attributes, excluding affordability and packaging size, no significant differences were indicated between the two poorest informal settlements in the importance that was attached to these attributes. It is of interest to observe that all the food product attributes for which no significant differences were measured between all four respondent groups, namely satiety value, product acceptability, product convenience and household structure, are imbedded in this category. Of further interest is the fact that the sequence of importance indicated by the three informal settlements for these attributes corresponds to the sequence reported by the baseline study, namely satiety value, affordability and packaging size.

A quite different picture arises for the importance of the non-economic food product attributes to (very) low-income and not so (very) low-income consumers. Figures reported for the attributes related to sensory aspects (taste, appearance and texture), culture (consumer acceptability including social, cultural and religious aspects), health (nutrient content, product safety/ shelf life) and status (product quality and brand loyalty),,indicate the significantly lower level of importance allocated by the two poorest informal settlements to food product attributes that are not related to

economic factors. For all of these food product attributes, no significant difference in importance was indicated between the two poorest informal settlements; however, a significantly lower level of importance was indicated by the two poorest informal settlements in comparison with the groups with slightly higher and substantially higher expendable incomes (see Table 4).

In overview, it is notable that the difference in the importance allocated to appearance, product quality, nutrient requirements, texture and product safety by the two more affluent settlements versus the two less affluent settlements, was established without any doubt (Figure 1, Annexure 1).

The 'nice to have' (Hughes, 2002:11) food product attributes, particularly, such as brand loyalty and product safety, were indicated as of much less concern to the (very) low-income consumers. Although the literature indicates that consumers 'at the bottom of the pyramid' perceive brands as critical owing to an aspiration for a new and enhanced quality of life (Prahalad, 2006:14), this was not the case for the settlements at the lower end of the (very) low-income scale, where mere survival was at stake.

However, the very low importance that these consumers allocated to the nutrient content of food is alarming. This incidence concurs with findings by the baseline study and other researchers (Joseph Rowntree Foundation (JRF), 1994:1; Walker et al., 1995:8; Nord et al., 2007:1). The link between expendable income and food security has also been indicated in the past, stating, inter alia, that typical food-secure households spent 31 percent more on food than the typical food-insecure household of the same size and composition (Nord et al., 2007:1).

Of the two metropolis-based settlements, Alexandra, the informal settlement of highest affluence, has a much higher prevalence of (very) low-income households (±33 percent) (Table 3), than the formal settlement, Tsutsumani, the most affluent settlement (±22 percent); yet significant differences in the importance allocated to food product attributes were reported only for packaging size and taste. This can possibly be ascribed to the fact that better taste costs money, and to the difference in interpretation of the need for specific packaging sizes (Marumo, 2008).

For Alexandra, the food product attributes related to economic constraints, excluding satiety value and brand loyalty, were indicated as being of less importance than the sensory, acceptance and health-related attributes. Further notable differences were indicated for appearance, product quality, nutrition, texture, and product safety/ shelf life. These values were indicated as being of much higher importance to this metropolis-based informal settlement than to the other two poorer

informal settlements, Boipatong and Eatonside (town- and city-based respectively) and were more similar to the responses by the formal settlement Tsutsumani. The challenge to producers to deliver 'aspirational goods' meeting the demands for quality at affordable prices (Prahalad, 2006:14) as indicated for consumers 'at the bottom of the pyramid', is therefore more applicable to those consumers with slightly higher income, at the higher end of the (very) low-income bracket.

4. CONCLUSIONS

The perception of food quality is a complex issue open to various approaches, of which only one has been applied in this study. The quality of a food product is subjectively based on the perception/s of consumers and is related to the reality of the specific consumer during purchasing choice (Brunsø et al., 2002:6-7, 52). Food product attributes are perceived as critical factors during this process, and constitute a major instrument in food marketing strategies (Kupiec & Revell, 2001:8). The ideal is, therefore, to combine the most preferred attributes (Kaul & Rao 1995:298) in order to enhance the competitiveness of the product in the marketplace for the specific consumer group.

From the systematic exploration ($p \leq 0.1$) of the importance of specific food product attributes to (very) low-income consumers during the purchasing of maize meal as staple food in this study, a specific trend was implied. Overall, a higher importance was indicated for satiety value, affordability and value for money by the (very) low-income consumers than by the more affluent respondent groups. This finding is supported by the literature, indicating the cost of food and the money available as the determining factors in what to eat (Dobson et al., 1994:33). For the importance of taste, food product acceptability and convenience, a closer match is observed between the (very) low-income and slightly more affluent informal settlements than between these and the higher-income formal settlement. The importance of taste as a food product attribute is very clearly indicated as being related to household income (84, 82, 82, and 91 percent respectively for the four settlements). It is important also to link taste to the fact that wastage is prevented by buying only the food that household members will eat. The purchasers themselves had often lost interest in food (Dobson et al., 1994:31).

The rest of the food product attributes (appearance, product quality, nutrient requirements, texture, product safety, brand loyalty and, to a lesser extent, household structure) indicate a higher level of importance allocated to food product attribute value by the two slightly higher-income groups,

along with, in most cases, a significant similarity of importance, which also applies between the lower values for the two (very) low-income groups.

In contrast with 'nice to have' food product attributes such as taste, quality and nutrient content (Painter, 2007:14), (very) low-income consumers consider food product attributes that are manipulated by economic restrictions, especially satiety value and affordability, as important attributes in combination with taste and acceptability (Table 4) as core product characteristics (Painter, 2007:14). Only thereafter do other attributes, such as appearance and ease of preparation, come into play as augmented product characteristics. The food product attributes reported can therefore be indicated as representative key buying goals in the minds of the (very) low-income consumers to obtain the highest level of product satisfaction (Malaviya & Sivakumar, 1998:98).

From these results, a margin is implied beyond which the lack of expendable income differentiates between food product attributes that can influence purchase choice to a higher or lower extent. For the (very) low-income consumers, little margin exists between the choice for quality and what price dictates – the poorer you are the more important price becomes. From these results, it can be inferred that even a little extra expendable income may assert an influence in relation to the food product attributes considered when making food-purchasing decisions (Dobson et al., 1994:34; CA, 1997:10).

5. RECOGNITION

Financial support for the work: National Research Foundation and Vaal University of Technology.

Guidance and input in article (based on a section of a PhD Consumer Science study at the University of Pretoria): Promoter, Prof HC Schönfeldt, co-promoter, Dr R Kruger & statistical advice, Prof D de Wet.

Respondents from the food environment and settlements: for valuable input.

REFERENCES

ACNIELSEN, 2005. A country divided: consumer spending trends in a dual economy. *Food Review*, April.

ALWITT, F & DONLEY, TD, 1996. *The low-income consumer: adjusting the balance of exchange*. Thousand Oaks: Sage.

AMULI, DJ, 2006. *Purchasing patterns of major plant staples in low-income households in the Vaal Triangle.* MTech dissertation, Vaal University of Technology.

BABBIE, E & MOUTON, J, 2002. *The practice of social research.* Cape Town: Oxford University Press.

BERK, KN & CAREY, P, 2000. *Data analysis with Microsoft Excel.* Canada: Duxbury Thomson Learning.

BFAP (BUREAU FOR FOOD AND AGRICULTURAL POLICY), 2007. *South African agricultural baseline: consumer trends and analysis*.
http://www.bfap.co.za/reports/BFAP%20Baseline%20June%202007.pdf Accessed 16 July 2007.

BLISARD, N & STEWART, H, 2007. *Food spending in American households, 2003-04*. Economic Information Bulletin, EIB-23. http://www.ers.usda.gov/Publications/EIB23/
Accessed 10 January 2008.

BRITS, I, 2002. *Investigation into density criteria as part of defining urban and rural areas for South Africa.* Statistics South Africa
http://66.249.93.104/search?q=cache:0FLTgsnrYsQJ:population.pwv.gov.za
Accessed 7 July 2007.

BRUNSØ, K, FJORD, TA & GRUNERT, KG, 2002. *Consumers' food choice and quality perception*. The Aarhus School of Business. Working paper, 77. Bureau for Food and Agricultural Policy.

(CA) CONSUMERS' ASSOCIATION, 1997. *The food divide – eating on a low income*. Policy paper.

CARDELLO, A.V. 2005. Terminology, reliability, validity, and subjectivity in the search for the 'voice of the consumer'. *Food Quality and Preference,* 16:203-205.

COOPER, RG, 1990. New products: what distinguishes the winners? *Research Technology Management,* 33:27-31,November/December.

COOPER, R & SCHINDLER, PS, 2003. *Business research methods.* 8th ed. New York: McGraw Hill.

DE WET, A, 2008. Personal discussion on the role of statistics in determining trends, 17 June.

DEN HARTOG, AP, VAN STAVEREN, WA & BROUWER, ID, 1995. *Manual for social surveys on food habits and consumption in developing countries*. Weikersheim: Margraf Verlag.

DOBSON, B, BEARDSWORTH, A, KEIL, T & WALKER, R, 1994. *Diet, choice and poverty: social, cultural and nutritional aspects of food consumption among low-income families*. Centre for Research in Social Policy. Loughborough University of Technology, London: Family Policy Studies Centre.

DOWLER, E, 1997. *Food access – whose responsibility?* Briefing paper. New Policy Institute. http://www.npi.org.uk/reports/food%20access.pdf Accessed 11 January 2008.

DUVENAGE, SS, 2008. *Development of a food product concept formulation framework for (very) low-income households in urbanised informal settlements in Gauteng South Africa.* PhD thesis (in progress), University of Pretoria.

ENGELBRECHT, K & DU RAND, P, 2000. Status of frail elderly black people in informal settlements. *South Africa's Continuing Medical Education Monthly,* 18(10):828-33.

FISHER, A, 1999. Consumer preferences and farmer's markets. *World Hunger Year.* http://www.worldhungeryear.org/why_speaks/ws_load.asp?file=52&style=ws_table Accessed 17 March 2007.

FOWLER, AA & PRIESTLEY, RJ, 1990. Raw material quality as perceived by the customer. In Smith, MF, Kort, MJ, Clarke, IR & Bush, PB (Eds), *Proceedings of the second national bakery symposium.* Technikon Natal.

GROVES, A, 2003. Consumer Watch. *Institute of Grocery Distribution Consumer Tracker*, February. http://www.igd.com/consumer Accessed 17 March 2007.

HADDAD, L, RUEL, MT & GARRETT, JL, 1999. Are urban poverty and undernutrition growing? *World Development,* 27(11):1891-1904.

HART, S, 2004. *New product development: a reader*. Eastbourne: Thompson.

HAWKINS, DI, BEST, RJ & CONEY, KA, 1998. *Consumer behaviour: building market strategy.* 7th ed. Boston, MA: McGraw-Hill.

HIGGS, N, 2007. *The state of South Africans as we start 2007*. TNS Research Surveys. mhtml:file://F:\The%state%20state%20of%20South%20Africans%20as%20we%20start%202007.mht Accessed 12 September 2007.

HORNIBROOK, S & MCCARTHY, M, 2004. *Consumer behaviour and supermarket strategies: understanding the market for beef in Ireland*. Working Paper, 70. Kent Business School: University of Kent.

HUBBARD, M & ONUMAH, G, 2001. Improving urban food supply and distribution in developing countries: the role of city authorities. *Habitat International*, 25(3):431-46.

HUGHES, D, 2002. *Consumer interests and the reform of the CAP: a review of relevant documentation and research.* http://ec.europa.eu/consumers/reports/rep02_en.pdf Accessed 27 August 2006.

(JRF) JOSEPH ROWNTREE FOUNDATION, 1994. *Eating on a low income.* Social Policy Research, 66. http://www.jrf.org.uk/knowledge/findings/socialpolicy/SP71.asp Accessed 19 February 2008.

KAUL, A & RAO, VR, 1995. Research for product positioning and design decisions: an integrative review. *International Journal of Research and Marketing,* 12**:293-320.

KUPIEC, B & REVELL, B, 2001. Measuring consumer quality judgements. *British Food Journal,* 103(1):7-22.

LEIBTAG, ES & KAUFMAN, PR, 2003. *Exploring food purchase behaviour of low-income households: how do they economize?* Economic Research Service Report, AIB-747-07.

MALAVIYA, P & SIVAKUMAR, K, 1998. The moderating effect of product category knowledge and attribute importance on the attraction effect. *Marketing Letters,* 9(1):93-106.

MARUMO, K, 2008. *Food product attributes of importance to low-income households during purchasing*. MTech dissertation (in progress). Vaal University of Technology.

MCDONALD, S, PIESSE, J & VAN ZYL, J, 2000. Exploring the distribution of household income in South Africa. *The South African Journal of Economics*, 68(3):423-54.

MITTAL, V & KAMAKURA, WA, 2001. Satisfaction, repurchase intent, and repurchasing behaviour: investigating the moderating effect of customer characteristics. *Journal of Marketing Research*, XXXVIII:131-42, February.

NORD, M, ANDREWS, M & CARLSON, S, 2007:1. Household food security in the United States, 2006. Economic Research Report, EER-49.
http://www.ers.usda.gov/Publications/ERR49 Accessed: 20 November 2007.

OLDEWAGE-THERON, WH, DICKS, EG, NAPIER, CE & RUTENGWE, R, 2005. Situation analysis of an informal settlement in the Vaal Triangle. *Development Southern Africa,* 22(1):13-26.

OLDEWAGE-THERON, WH, DICKS, EG & NAPIER, CE. 2006. Poverty, household food insecurity and nutrition: coping strategies in an informal settlement in the Vaal Triangle, South Africa. *Public Health,* 120:795-804.

PAINTER, K, 2007. *An analysis of food-chain demand for differentiated farm commodities: implications for the farm sector*. Centre for Sustaining Agriculture & Natural Resources. Washington State University.

PORKESS, R, 2005. *Collins dictionary of statistics.* 2nd ed. Glasgow: HarperCollins.

PRAHALAD, CK, 2006. *The fortune at the bottom of the pyramid: eradicating poverty through profits*. Wharton: Wharton School Publishing.

PRAHALAD, CK & HART, S, 2006. Making a market among the poor. *Food & Beverage Reporter*, August. http://www.developtechnology.com/web/content/blogcategory/18.31
Accessed 17 September 2008.

PSD (PRIVATE SECTOR DEVELOPMENT) BLOG, 2007. World Bank Group. *World's largest untapped consumer segment.*
http://psdblog.worldbank.org/psdblog/2007/12/the-largest-unt.html Accessed 10 January 2008.

PUNCH, KF, 2005. *Introduction to social research:quantitative and qualitative approaches.* 2nd ed. London: Sage.

ROBSON, C, 2002. *Real world research.* Oxford: Blackwell.

ROUND, DK & TUSTIN, J, 2004. *Consumers as international traders: some potential information issues for consumer protection regulation*. International Trade Law Conference, 23 September, Canberra, South Australia.

SAARF (SOUTH AFRICAN ADVERTISING RESEARCH FOUNDATION), 2006. *Segmentation handbook – based on AMPS 2005 and AMPS 2006*. Johannesburg.

SSA (Statistics South Africa), 2000. Measuring poverty in South Africa. *RDP (Reconstruction and Development Programme) Development Monitor,* 16(12):5-7, December. http://statssa.gov.za Accessed 19 February 2008.

SSA (STATISTICS SOUTH AFRICA), 2005a. *Calculating the undercount in Census '96*. Appendix E: enumerator area type definitions.
http://www.statssa.gov.za/census01/census96/HTML/Metadata/Docs/Undercnt?appendices/appendix_e.htm Accessed 7 July 2008.

SSA (STATISTICS SOUTH AFRICA), 2005b. *Census Survey 2001*.
http://www.statssa.gov.za Accessed 25 March 2008.

STEWARD, H & BLISARD, N, 2008. *Are lower income households willing and able to budget for fruits and vegetables?* Economic Research Service Report, ERR-54.
http://www.ers.usda.gov/Publications/ERR54/ Accessed 10 Jan 2008.

TODD, PM & DIECKMANN, AJ, 2004. *Heuristics for ordering cue search in decision making.* http://books.nips.cc/papers/files/nips17/NIPS2004_0292.pdf Accessed 22 January 2008.

TORJUSEN, H, LIEBLEIN, G, WANDEL, M & FRANCIS, CA, 2001. Food system orientation and quality perception among consumers and producers of organic food in Hedmark County Norway. *Food Quality and Preference*, 12:207-216.

UNICEF (UNITED NATIONS CHILDREN'S FUND), 1998. *The state of the world's children.* New York.

VON ALVENSLEBEN, R, 2002. Consumer behaviour. In Padberg, DI, Ritson, C & Albisu, LM (Eds). *Agro-food marketing.* Wallingford: CAB.

WALKER, R, DOBSON, B, MIDDLETON, S, BEARDSWORTH, A & KEIL, T, 1995. Managing to eat on a low income. *Journal of Nutrition & Food Science,* 3:5-10, May/June.

WATKINSON, E & MAKGETLA, N, 2002. Cosatu looks at the food security crisis. *South African Labour Bulletin,* 26(2):45-8.

ANNEXURE 1 Exploratory comparison of the importance of food product attributes to (very) low-income consumers with different expendable incomes

Food product attributes	Score of food product attribute importance[1] Boipatong %	Eatonside %	Alexandra %	Tsutsumani %	Scores compared	Motivation for choice of scores	Difference of scores vs norm %	Significance in difference
Satiety value	94	92	92	90	Boipatong & Tsutsumani	Highest & lowest	4 < 9.899	No
Affordability	86	78	76	82	1. Boipatong & Alexandra	Highest & lowest	10 > 7.783	Yes
					2. Tsutsumani & Alexandra	Second highest & lowest	6 < 8.761	No
					3. Weighted mean (Alexandra + Eatonside + Tsutsumani) & Boipatong	Weighted mean & outlier	7.608 > 5.976	Yes
Packaging size	86	72	73	88	1. Alexandra & Eatonside	Close scores but lower	1 < 9.066	No
					2. Tsutsumani & Boipatong	Close scores but higher	2 < 7.159	No
					3. Weighted mean (Alexandra + Eatonside) & weighted mean (Tsutsumani + Boipatong)	Lowest & highest	14.338 > 5.771	Yes
Value for money	73	80	66	69	1. Eatonside & Alexandra	Highest & lowest	14 > 8.899	Yes
					2. Boipatong & Alexandra	Second highest & lowest	7 < 9.163	No
					3. Weighted mean (Boipatong + Tsutsumani + Alexandra) & Eatonside	Weighted mean & outlier	10.55 > 6.96	Yes
					4. But: Eatonside & Boipatong	Highest scores	7 < 8.425	No
Taste	84	82	82	91	1. Tsutsumani & Eatonside	Highest & lowest	9 > 7.236	Yes
					2. Boipatong & Eatonside	Second highest & lowest	2 < 7.508	No
					3. Weighted mean (Boipatong + Alexandra + Eatonside) & Tsutsumani	Weighted mean & outlier	8.302 > 5.604	Yes
Acceptability	81	83	78	86	Tsutsumani & Alexandra	Highest & lowest	8 < 8.203	No
Appearance	80	76	90	89	1. Boipatong & Eatonside	Close scores but lowest	4 < 9.028	No
					2. Eatonside & Tsutsumani	Lowest & second highest	13 > 7.988	Yes
					3. Alexandra & Tsutsumani	Very close highest scores	1 < 6.675	No
					4. Weighted mean (Boipatong + Eatonside) &	Weighted means of lower &	11.495 > 8.459	Yes

					weighted mean (Alexandra + Tsutsumani)	higher scores		
Product quality	73	77	86	86	1. Eatonside & Boipatong	Close scores but lowest	4 < 8.631	No
					3. Weighted mean (Eatonside + Boipatong) & Tsutsumani (Tsutsumani & Alexandra = similar)	Weighted mean but lower & highest	11.074 > 7.126	Yes
Convenience	80	79	81	87	1. Alexandra & Eatonside	Highest and lowest scores of cluster	2 < 8.12	No
					2. Weighted mean (Alexandra + Boipatong + Eatonside) & Tsutsumani	Weighted mean of lower cluster & outlier with higher score	6.998 < 8.029	No
Nutrient content	59	65	81	87	1. Eatonside & Boipatong	Close scores but lowest	6 < 9.671	No
					2. Tsutsumani & Alexandra	Two highest scores, quite different from lower scores	6 < 7.856	No
					3. Weighted mean (Eatonside + Boipatong) & weighted mean (Alexandra + Tsutsumani)	Weighted means of lower & higher cluster	21.723 > 6.275	Yes
Texture	69	72	89	83	1. Eatonside & Boipatong	Close scores but lowest	3 < 9.1	No
					2. Alexandra & Tsutsumani	Two highest scores, quite different from lower scores	6 < 7.593	No
					3. Weighted mean (Eatonside + Boipatong) & weighted mean (Alexandra + Tsutsumani)	Weighted means of lower & higher cluster	15.944 < 5.863	Yes
Product safety	69	62	86	80	1. Boipatong & Eatonside	Close scores but lowest	7 < 9.479	No
					2. Alexandra & Tsutsumani	Two highest scores, quite different from lower scores	6 < 8.205	No
					3. Weighted mean (Boipatong + Eatonside) & weighted mean (Alexandra + Tsutsumani)	Weighted means of lower & higher cluster	17.758 > 6.207	Yes
Brand name loyalty	69	61	74	82	1. Boipatong & Eatonside	Close scores but lowest	8 < 9.504	No
					2. Tsutsumani & Alexandra	Two highest scores but quite different	8 < 8.877	No
					3. Alexandra & Boipatong	Two middle scores	5 < 8.977	No
					4. Weighted mean (Boipatong + Eatonside) & weighted mean (Tsutsumani + Alexandra)	Weighted means of lower & higher cluster	12.305 > 6.544	Yes
Composite family structure	76	79	83	82	Alexandra & Boipatong	Highest & lowest scores	7 < 8.002	No

[1] As reported in Figure 2

6

FOOD PRODUCT ATTRIBUTES GUIDING PURCHASING CHOICE OF MAIZE MEAL BY LOW-INCOME SOUTH AFRICAN CONSUMERS: A QUALITATIVE APPROACH

6.1 INTRODUCTION

In a baseline survey (Phase 1 of this study), the food product attributes (concepts) perceived as most important by low-income consumers during the purchasing choice of the starch staple-type food mostly consumed, maize meal, were identified (Chapter 4). The food product attributes, in sequence of importance to the target population, were reported as satiety value, affordability, packaging size, value for money, taste, acceptability, appearance/ colour, product quality, convenience/ ease of preparation, nutrient content, texture, product safety/ shelf life, brand name loyalty/ satisfaction, and the influence of the household, suggesting the design parameters for the food product concept formulation framework (Chapter 4 Table 2).

Phase 2 of this study consisted of two parallel approaches, comprising an extended survey to validate the suggested design parameters in the target market against an established product (quantitative approach) (reported in Chapter 5), and the description of the identified food product attributes (concepts) to reveal embedded concept elements to clarify terminology use (qualitative approach). The latter approach is reported in this chapter.

The informal urbanised settlements of Boipatong (near a town, Vanderbijlpark), Eatonside (near a city, Vereeniging), and Alexandra (near a metropolis, Johannesburg), and the urbanised formal settlement Tsutsumani (adjacent to Alexandra) (Statistics South Africa (SSA), 2005), were included in both investigations.

Household poverty was reported by all the respondents groups, but was more pronounced in two of the informal settlements, namely Boipatong and Eatonside. Approximately 70 percent (Boipatong), 55 percent (Eatonside), 44 percent (Alexandra) and 29 percent (Tsutsumani) of the inhabitants of the respective areas were living below the household poverty line of R800 (US$78)/ month/ household (Chapter 4 Table 3; SSA, 2005).

The possible relationship between the level of (lack of) household income on the level of importance perceived for the need of specific food product attributes, are integrated in this chapter. However, this criterion needs to be validated.

A multi-pronged approach has been applied during this phase of the investigation. The aims were firstly to understand the concepts being tested, and then to apply this understanding during screening of the data from the quantitative survey (reported in Chapter 5) to ensure consistency in the meaning of terminology between the different respondent groups (internal validity) (Bless, Higson-Smith & Kagee, 2007:93).

Next, a brief synopsis of the literature describing the different food product attributes was compiled. The aim was to develop an understanding of the meanings reported for the identified food product attributes that guide purchasing choice from the view points of both the low-income consumer and as based on literature (and as such applied by the food industry). The investigation into the similarities and differences between the meaning of the different food product attributes (concepts) and revealed concept elements, as reported by the different participating groups and the literature, contribute to the applicability of the research findings to the real world.

6.2 METHODS

6.2.1 Focus group discussions

The research team consisted of the principal investigator, one researcher and a field worker. The team was familiar with the aim of the research and the purpose of the focus group discussions. The researcher is fluent in several indigenous languages and acted as a facilitator during the focus group discussions. The principal investigator and the field worker were responsible for the writing of supportive field notes and reporting observations as recommended by Finch and Lewis (2005:182).

During the fieldwork conducted for the parallel quantitative survey (reported in Chapter 5 of this thesis), suitable participants were recruited to participate in the respective focus group discussions. They had to meet the screening criteria stipulating the habitual consumption of maize meal, being the main food purchaser for that household, and living in a shack. These respondents were not included in the quantitative survey in order to prevent influencing focus group discussion results.

One focus group discussion was conducted in each of the respective settlements, giving four group discussions, with between five and ten participants each (Morgan, 1996:17; Finch & Lewis, 2005:191-192). The option to conduct more focus groups was kept open if the derived results would indicate discrepancies or unsatisfied findings.

To keep the environment as natural and emotionally comfortable as possible (Finch & Lewis, 2005:195), the focus group discussions were conducted within the home of a willing collaborator in each of the respective settlements. When participants were welcomed and comfortably seated, the procedures for the focus group discussion and the use of the transcriber were explained. To ensure anonymity and confidentiality of data, participants were numbered.

Discussions were initiated by describing to respondents that they are within their usual shopping situation, making a choice for the purchasing of their starch staple-type food, maize meal. Probing questions (Finch & Lewis, 2005:171), based on the food product attributes (concepts) already indicated as important by these low-income consumers, were used to stimulate further discussion. Participants were encouraged to explain what they mean when a term was used. When spontaneous discussion ceased to reveal new information and time allowed, explanatory questions based on the food product attributes already introduced by the respondents, were applied as probes to facilitate further discussion. The viewpoints and experiences of the different participants were aired, and interaction between participants took place, stimulating further discussion and comments, until saturation was met.

The researchers listened to what the respondents were saying and doing, and allowed enough time for clarification and dispute in the discussion. Care was taken to involve as many of the respondents as possible during the discussions.

For the purpose of accuracy and inherent content, the mother language used by the respective respondents was employed as far as possible. The focus group discussions in Boipatong, Eatonside and Alexandra were conducted mainly in Sotho, with Zulu inputs from time to time. The focus group discussion in Tsutsumani was conducted in English as all participants were comfortable with the language.

During the focus group discussions data were captured using a transcriber to record the actual words being said, and field notes were taken by the researchers to report interesting or unusual observations for follow-up during the discussions as recommended by Corbin and Strauss

(2008:66). As soon as possible after the focus group discussions the researchers sat together to work through and assimilate information.

6.2.2 Data analysis

A comparative study (Corbin & Strauss, 2008:143) was conducted to derive a clearer understanding of the meaning of the identified attributes as perceived by the respective target population groups. A researcher needs to develop an understanding of how respondents relate to events, and should meet the continuous demand to reinterpret and increase insight during the analysis process (Corbin & Strauss, 2008:48, 50). In order to enhance reliability of findings, two researchers were involved in this section of the study (Duvenage and Marumo).

The mode of inquiry followed involved the narrative descriptions of phenomena within an interpretivist framework to accommodate different views (Taylor-Powell & Renner, 2003:1; Henning, Van Rensburg & Smit, 2004:19). Theoretical sampling (Corbin & Strauss, 2008:143) refers to a method of data analysis during which concepts (concept elements in this study) or themes are derived from textual data.

Data was transcribed word by word and then translated into English by one of the researchers, focussing on capturing the essence of what was reported. The field notes written during the respective focus group discussions assisted in this process, especially with the linking of responses with the numbering of participants. A letter indicated the geographical area, e.g. B if a participant was from Boipatong, and a numeral indicated the respondent number e.g. 2. The respondent was then indicated as B2 and the response was quoted. Respondents were numbered to prepare for the eventuality if it was necessary to trace an argument for a specific respondent.

Top-down analysis was applied through the application of the preset categories for analysis according to the food product attributes (concepts) identified in the earlier phase of this study (Chapter 4), but keeping the possibility of emergent categories in mind as indicated by Babbie and Mouton (2002:492) and Taylor-Powell and Renner (2003:3). In order to examine the data for identification of the major common properties and dimensions thereof (Corbin & Strauss, 2008:45, 231), conceptual content analysis was applied.

Colour coding was applied to aid in the identification of specific words or key phrases describing the food product attributes (concepts) (Babbie & Mouton, 2002:492) as well as

additional food product attributes as revealed. Concepts were described through the concept elements revealed by the data obtained from the respective focus group discussions.

In order to identify the descriptive concept elements within each of the concepts for each of the respondent groups, the reported responses in each category were grouped to reveal themes (Taylor-Powell & Renner, 2003:2; Corbin & Strauss, 2008:76-77), often using in-vivo coding. So doing the existing concepts was described through properties and dimensions. If needed, existing concepts were revised and adjusted to accommodate the revealed understanding. This method assisted in the identification of general patterns as well as variations.

In order to provide deeper insight from the perspective of the different respondent groups, the richness of the textual data was further exploited through a horisontal perusal of the data between the different respondent groups (Gaede, 2008). The concepts and concept elements derived from the data obtained from each of the respondent groups were compared for similarities and differences (Corbin & Strauss, 2008:57). In order to support analysis and interpretation, independent analysis was conducted by both of the researchers (Duvenage and Marumo). Results were compared and discrepancies in meaning resolved (Taylor-Powell & Renner, 2003:9). From the links revealed between the concepts, a better understanding of the interrelationship between the concepts were developed, revealing core categories of the greatest explanatory relevance to which the other concepts were related (Corbin & Strauss, 2008:104, 106). The derived knowledge could subsequently be applied to indicate inferences about the object as a whole.

The findings for the formal settlement Tsutsumani have been reported for the purpose of “prompting” the identification of similarities and differences and to support the identification of possible suggested meanings in the data from the informal settlements that would otherwise have been lost. Results obtained for the formal settlement group were, however, reported separately and not embedded in the derived final results.

Following, the perceived inherent characteristics of the respective food product attributes are reported, as extracted from the original data captured for the different respondent groups. The food product attributes (concepts) reflect the different categories, and the concept elements represent the themes describing each of the categories.

6.3 RESULTS AND DISCUSSION

To ensure the validity of content (Babbie & Mouton, 2002:275; Bless *et al.,* 2007:157), a comparison was drawn. The comparison involved the operational understanding of the concepts (food product attributes) as described through concept elements by the target groups, as well as the content that literature (and, by extension, industry) associates with these terms. This approach supports the applicability of terminology during food product development by the industry for low-income consumers.

For all tables in this chapter the abbreviation “B” is indicative of the responses of the Boipatong, “E” of the Eatonside, and “A” of the Alexandra informal settlement respondents respectively. “T” is indicative of the responses of the respondents of the Tsutsumani formal settlement, and the number is indicative of the individual respondents in each of the focus groups.

6.3.1 Satiety value

The respective respondent groups in the study described the satiety value of maize meal (Chapter 6 Table 1) in terms of the provision of energy, a feeling of fullness, the absence of hunger and a feeling of well-being. All four groups highlighted the provision of energy, but one of the lower income informal settlements, Eatonside, did not report a feeling of fullness as indicative of satiety value and a prolonged period of not needing to eat. This settlement was also the only one to indicate an emotional link to satiety value: “I feel good” and “I feel right”.

When viewing this situation within the context of the Kinsey’s consumer food demand pyramid (Painter, 2007:15), it is clear that the struggle for sufficient kiloJoules (lower-priced foods and foods that are not spoiled) is representative of the lowest level in the hierarchy of consumer food preferences. Only when the basic physiological and safety needs are acceptably met, can consumers strive towards the next level. This is assumedly the case with the respondent group of lowest income, Eatonside, who indicated a feeling of wellness originating from the meeting of bare basic needs. In contrast, the formal settlement, the group of highest income, reported a feeling of heaviness in the stomach resulting from “…eating more than enough maize meal”.

Table 1: Satiety value as concept

Concept elements	Statements from respondent groups
Provision of energy	B7: It gives you energy and you become active. B5: It gives you more energy than when you have eaten bread. E4: I like maize meal that gives me energy and I am satisfied with that. A9: It gives energy. After eating maize meal, you feel you can work. A7: I like the fermented maize meal porridge because it gives me energy. T2: …you feel energetic…
Feeling of fullness	B4: When you are full like this, e.g. you have eaten at 10:00 and you eat again at 16:00, it means you are full. B6: Once you are full, you don't long for another meal. B2: …when I cook it, it becomes thick quickly and it also makes us full. B4: When you are full like this, e.g. you have eaten at 10:00 and you eat again at 16:00, it means you are full. A5: Your stomach becomes full. T3: You feel full, it is heavy in the stomach from eating more than enough maize meal.
Absence of hunger for a longer period of time	B5: It lasts longer in the stomach. B2: Mostly I like it for the children. If you give them the porridge with milk, they play the whole day without complaining about hunger. A7: You will want food after a longer time when you have eaten maize meal. A1: The one I grew up eating was too soft and weak, I had to eat a lot of it – five times per day. With Ace[1], I eat only once.
Feeling of well-being	E6: I feel good. E6: I feel right. T2: Satisfactory. You feel full and it's healthy…

[1]Maize meal trade mark

These statements are supported by literature that indicates hunger as the key driver for eating, influencing all consumers to react to the stimuli of hunger and satiety value (European Food Information Council (EUFIC), (2005:1)). Satiety value represents the degree to which foods give a sense of well-being or satisfaction of appetite (Satiety value, 1929:1), including the state of no hunger between two eating occasions (EUFIC, 2005:1). The volume of food/ portion size consumed plays a role in obtaining satiety value. The highest satiety value is provided by foods that remain the longest in the stomach and produce the greatest functional activity (Satiety value, 1929:1). Accordingly, hunger relates to the sensation experienced when a lack of food

produces a rhythmic contraction of the stomach, whereas, a full stomach provides a feeling of gratification (Satiety value, 1929:1; EUFIC, 2005:1).

The filling capacity of a food product, as related to satiety value, is of great importance to low-income consumers and foods with this attribute are purchased over other foods that are liked or can be afforded (Dobson, Beardsworth, Keil & Walker, 1994:31). Food products of lower energy density produce greater satiety value (EUFIC, 2005:1), but maize meal is an energy-dense food item high in refined grains (Drewnowski & Darmon, 2005:900; Oldewage-Theron, Dicks & Napier, 2006:798), which can easily lead to unintentional over-consumption (EUFIC, 2005:1).

6.3.2 Affordability/ price

The qualitative data revealed that affordability/ price is described through three concept elements namely the availability of enough money, that price determines package size, and also as the prevention of waste (Chapter 6 Table 2).

Only the two poorest informal settlements, Boipatong and Eatonside, indicated the availability of enough money as a prerequisite for, and determinant of, the package size of maize meal being purchased, indicating a higher level of financial constraint than for Alexandra, the informal settlement of highest income. This group also mentions size of the family and the period for which provisioning is to be made as indicators for package size, as well as a willingness to pay for preferred qualities, e.g., to obtain a maize meal with a familiar taste, as price is perceived as an affordable quality indicator.

Tsutsumani, the group of highest income, indicated it as “affordable” to pay for a specific brand to obtain the preferred taste. It is of interest that all groups except Eatonside mentioned the prevention of wastage as an indicator for the affordability of a maize meal product, although different techniques are reported. The lower-income informal settlement of Boipatong indicated the purchasing of smaller packaging sizes to prevent spoilage and the suitability of leftovers for consumption the following day as important; while Alexandra, which is in an area of higher affluence, indicated that an acceptable maize meal choice for all household members was important. The area of highest income, Tsutsumani, perceives the choice of brand with suitable characteristics to meet household preferences, as a method of preventing wastage.

Table 2: Affordability/ price as concept

Concept elements	Statements from respondent groups
Availability of enough money	B5: As for me, it depends on the money I have for that month. E2: I like Mamas[1], but mostly my purchases rely on the money available. That is why I buy the one on special price. A7: You buy the maize meal you are used to, whatever the price may be, it does not matter. T3: For me if the price is a bit higher, maybe I can't afford.
Price determines packaging size	B3: I buy that size because we are many in the household and I get money per month and I buy once. B4: Sometimes I can buy looking at the size of the family and sometimes I compare the prices and buy the large size if I find it cheap. E4: I buy 12,5 kg, but when I don't have enough money, I buy 5kg. E4: …but sometimes when I don't have enough money for one of them, I just buy the one I find on special so that at least I can have something to eat for the day. A5: …when you buy a particular size, you consider the size of the family and how long it will last.
Prevention of waste	B4: But I prefer buying small sizes to avoid spoilage. B5: I once bought an Impala[1] maize meal and a lot was left in the pot and it had a bad smell. B6: We can have leftovers and eat them the following day. B7: Most of the time we eat it in the evening and the leftovers in the pot we eat them the following day in the afternoon. A9: …we cannot cook two pots of different maize meal. T3: But sometimes it happens that the brand you were using has changed…everyone in the house was complaining. So I changed to a new brand. T2: It is important because if I use two 12,5kg a month it is too much for me, and then if I use one 12,5kg it's OK.

[1]Maize meal trade mark

These results accord with the literature, which describes affordability as the extent to which consumers can meet the expense of a product, as measured by its cost relative to the amount that the purchaser can or is able to pay (Reader's Digest Universal Dictionary, 1988:35). Dobson *et al.* (1994:31) point out that low-income consumers give preference to quantity over quality, while a slightly higher income gives the opportunity to prioritise quality over quantity. If the assumption is made that maize meal quality is directed by price, as is perceived by these consumers, then it is true for the Boipatong and Alexandra informal settlements that the best quality that can be afforded for the quantity needed, is purchased. For the Eatonside informal

settlement, as well as for some respondents from Boipatong, it was reported that the cheapest product is purchased for the quantity needed.

6.3.3 Taste

The three concept elements, namely familiarity/ acceptability of taste, versatility of use and willingness to pay, were indicated as descriptors for taste (Table 3).

The perception of the importance of taste (Chapter 6 Table 3) differs between the respondent groups, specifically in relation to the willingness to pay for a specific taste. The two informal settlements of lower income, Boipatong and Eatonside, indicated a conservative approach. Boipatong indicated the familiarity of taste as linked to brand as important, but it is also perceived as linked to financial constraints like the degree of thickening provided by the product. Eatonside reported a preference for taste, but purchases rely on the money available – indicating the priority of financial constraints in product choice for this informal settlement. Alexandra, the informal settlement of highest affluence, links taste to brand, but also indicates familiarity of taste as a key factor that guides the purchasing choice of maize meal. The respondents in Alexandra link the quality of taste to the whiteness of the maize meal and to the price paid for the product. Taste preferences learned in childhood are perceived as important. Tsutsumani, the settlement of highest affluence in the study, links taste to brand but perceives taste as more important than brand. The link to other food product attributes like smell, texture, and mouth feel are also of importance.

Taste is also linked by all respondent groups to the versatility of the use of the maize meal, indicating the consumption of the soft or stiff product as such, with milk, tea, soup, spinach, meat, as a braai accompaniment and as macheu (a traditional drink based on fermented thin maize meal porridge) (see Chapter 6 Table 3).

According to the literature, taste is the most important determinant of food choice (Bogue, Delahunty, Henry & Murray, 1999:313), including all sensory stimulation produced by the ingestion of food (EUFIC, 2005:1). Harker (2001:4) indicates that all ethnicities perceive similar taste sensitivities. In the current study, each of the four groups was comprised of a variety of different ethnic groups.

Table 3: Taste as concept

Concept elements	Statements from respondent groups
Familiarity/ acceptability of taste	B3: The taste, the texture, the smoothness. B4: I will tell you about Iwisa[1] maize meal. I like it and it is tasty. When I use two or two and a half cups, it becomes thick. Therefore, it can last for three weeks. E5, E6, E7: My children are so used to Ideal maize meal, if I buy a different brand they will complain that this maize meal is not good. A10: …if the taste has changed I try another brand. A1: I like the white maize meal because the yellow maize meal does not have a good taste like the white one. A5: I am so used to the maize meal that I buy, so I buy that one because other brands I don't know how they taste like. Sometimes you will find that the taste is worse with other brands. T1: It is flavourful like mealies. T3: Its taste is not like the other maize meal that I used before, because it is nice in the mouth and even when you chew, you smell that maize. So that is why I said it is tasty to me. T3: But now when I taste, Ace has changed…everyone in the house was complaining. So I changed to a new brand. T5: If I go to buy Papa[1] and it is not there I also buy Ace because I grew up eating Ace and the taste is similar.
Versatility of use	B4: When I cook Iwisa[1] maize meal, I don't add salt, I just eat it the way it is and it's smooth. I enjoy it like someone who adds salt to it. B7: Iwisa[1] is very tasty and you can just eat it without accompaniments. B5: Iwisa[1] is tasty. We eat it with milk, spinach and meat. E4: We can also have maize meal porridge with tea, soup and meat. A3: I ferment the maize meal to prepare sour porridge. T5: I buy Papa maize meal because it has a nice taste, you can even eat it with milk, it's very nice with meat, everything. T3: You can make a lovely pap for braai.
Willingness to pay	E7: It depends which maize meal is on special… For example Ideal is the same as Iwisa[1]. So if Ideal is on special I take ideal and leave Iwisa[1]. A10: …if the taste has changed I try another brand. I will look at the price because it means the price I was paying for the old brand does not suit it because of the changed taste. If the price is high in the new one, it means it is a quality product. A9: The price issue is confusing because you cannot follow the price whereas you don't get the taste that you like.

[1]Maize meal trade mark

Taste preference is related to experience, as indicated by familiarity with various types of food and the existing diet, and is influenced by attitudes, beliefs and expectations (Harker, 2001:4; EUFIC, 2005:1). As the major starch staple food for all the participating groups in this study is maize meal (Nel & Steyn, 2002:136-142, 48-49; Oldewage-Theron *et al.,* 2006:800) the respondent groups have an experience-based knowledge of the product, which contributes to the internal validity of the study (Babbie & Mouton, 2002:122). Financial constraints demand that individual taste preferences are accommodated as far as possible to ensure product acceptance and limit wastage (Dobson *et al.,* 1994:32). In the current study, the influence of the money available on purchasing choice is clearly illustrated. The more confining the financial constraints a consumer experiences, the less influence taste exerts as parameter during starch staple food choice.

6.3.4 Convenience/ ease of preparation

According to the perceptions of the different respondent groups convenience/ ease of preparation was described through two concept elements, namely preparation time and usability of leftovers (Table 4).

Table 4: Convenience/ ease of preparation as concept

Concept elements	Statements from respondent groups
Preparation time	B4: …thickens quickly and when we eat it in the household, we really feel we have eaten a good maize meal. B2: …it becomes thick quickly and it makes us full. B7: …I look at how easily it thickens… E8: I use Ideal because it becomes thick (more) quickly that the other maize meals. E1: …thickens quicker when cooking it. E7: It depends which maize meal is on special and which maize meal thickens quicker. A5: Ace[1] gets cooked easily… A9: It gets cooked faster. T1: It doesn't take too long to cook.
Usability of leftovers	B6: In the morning the leftovers in the pot are still white, no discolouration. B7: Most of the time we eat it in the evening and the leftovers in the pot we eat them the following day in the afternoon. T3: …even if you don't have bread in the house and the kids are crying, you just make tea and take the previous night's stiff porridge and they drink tea with it and things go well.

[1]Maize meal trade mark

Convenience/ ease of preparation were described by the respondent groups in terms of preparation time, usability of leftovers and texture characteristics. All four of the groups perceived preparation time as highly important, especially Eatonside, - identifying the ability to thicken quickly as a purchasing choice indicator.

The duration of the cooking period is judged in terms of cost implications, and is further linked to the feeling and duration of fullness (satiety value) obtained from the thickness of the porridge. Linked texture indicators included the absence of lumps, not too soft a texture (a medium texture provides a thicker porridge with better satiety value), and ease of thickening (a limited amount is needed to obtain the preferred thickness). All these indicators have economic roots, referring to the reality of these low-income households. The usability of leftovers the following day was indicated as a priority by Boipatong, Alexandra and Tsutsumani respondents. It was not explored as part of this studies whether an excess of porridge was prepared deliberately and the purposes thereof.

The layman perceives convenience as referring to food products being quick and easy to prepare or ready to eat (Silayoi & Speece, 2004:605; Jaeger, 2006:133). The first of these aspects is addressed in the section dealing with the concept texture (§6.3.8).

All of the aspects relating to simple convenience, including the time and energy allocated to meal preparation, are imbedded in the findings. Complex convenience refers to the skills required to produce food, and includes planning, shopping, storage, preparation, consumption and cleaning, and is more time and energy intensive (Candel, 2001:17; Grunert, 2003:3).

Jaeger (2006:133) also regards product availability out of season, extended shelf life and the ability to consume a product without utensils, as aspects of convenience. As maize meal is available on the shelves throughout the year in South Africa, this aspect was not specifically addressed in the current study. Maize meal is widely consumed in South Africa in different forms according to taste and culture, and selection for the various uses is imbedded in product choice. Therefore, no attention was given to the use of utensils as part of this study. However, the aspect of extended shelf life was discussed in the current study within the context of affordability (as prevention of waste, in Chapter 6 Table 2), and product safety/ shelf life (Chapter 6 Table 9) as managed by packaging size.

6.3.5 Household influence

Two concept elements, preferences of household members and money available, were indicated as descriptors for household influence (Chapter 6 Table 5):

Table 5: Household influence as concept

Concept elements	Statements from respondent groups
Preferences of household members	B5: If it is not available I would rather buy bread because I know my children won't eat any other maize meal B6: I do ask them how is the pap and they will tell me. B7: I do ask them because children like pap and if you change, they complain. E5: My children are so used to Ideal maize meal, if I buy a different brand they will complain that this maize meal is no good. E6: Same applies to my children. E7: Even my children will tell me that. A9: I listen to what other household members want, but the problem is we cannot cook two pots of different maize meal. A6: I buy the maize meal that my husband likes and if I don't like it, I just eat and I will get used to it. A10: I prefer that we buy 5kg of Ace and 5kg of another brand that is liked by the household members and we can all have a share of the brands we like sometime. A7: I grew up eating Ace[1] and my children are also eating it and I will not listen to any complaints about Ace[1]. A5: If you have children in your household, you raise them eating a certain brand and they get used to it, so there is no way that they will want a different brand. T1: I just buy according to my children, if they will like it. T2: With me, I always do things the way I see will suit everyone. Like my children, they don't know the difference between Ace[1] and whatever, and my husband, as long as it is pap, nicely done, it is OK. As the wife and mother, I know what's right or wrong for my family. T4: For me it is the brand name because I buy the one that I get satisfied with when I am using it.
Money available	B5: As for me, it depends on the money I have for that month. E2: I like Mamas[1], but mostly my purchases rely on the money available. That is why I buy the one on special price. A7: You buy the maize meal you are used to, whatever the price may be, it does not matter. T3: For me if the price is a bit higher, may be I can't afford.

[1]Maize meal trade mark

The elements identified for the description of the concept of household influence include preferences of household members, money available and household size (Chapter 6 Table 5). The acceptance of the maize meal by the children was indicated as important to all the respondent groups, but for both Boipatong and Eatonside, the two informal settlements of lower income, the choice is finally determined by the money available for purchasing. In Alexandra and Tsutsumani, the settlements of higher income, the children's choices were perceived as important, but the husband's preferences were also indicated as important (and overriding). In some households, smaller packages of different brands are purchased so that "…we can all have a share of the brands we like sometime".

Household size, money available and the period for which provisioning should be made, impact directly on the packaging size of the maize meal purchased. Please see the section on packaging size (Chapter 6 Table 7).

In general, household composition, including family size, presence or absence of a male partner and availability of additional income, influence food product purchase (Dobson *et al.,* 1994:31). The household composition influences the amount of food purchased, with larger households purchasing more food but less variety (Guthrie, Lin, Reed & Steward, 2005:38).

Usually one person is responsible for the purchasing for a low-income household in order to limit spending and arguments (Dobson *et al.,* 1994:13). Preferences of children and/ or partners are considered during food purchasing, often with different brands purchased in turn so that preferences can be met (Dobson *et al.,* 1994:19), as was also found by this study for the slightly higher income groups.

6.3.6 Appearance/ colour

The concept appearance/ colour was described in terms of whiteness and the perception that colour infers quality (Chapter 6 Table 6).

The whiteness of the maize meal and inferred quality attributes describe the need for the food product attribute of appearance/ colour. The white colour of the maize meal was emphatically indicated as preferred by all the settlements.

Table 6: Appearance/ colour as concept

Concept elements	Statements from respondent groups
Whiteness	B4: I like Iwisa[1] because when I cook it, it becomes very white… B5: In my household, we like Iwisa[1] and Papa[1] maize meal because they are white… B6: I like Papa[1] because looking at it, it is white… E5: Ideal was very white and I continued buying it. A10: I like white maize meal… A1: I like white maize meal… A5: I like the white maize meal… A2: I like the white maize meal… A7: I get satisfied with a white maize meal. T1: I like the Iwisa[1] maize meal because of its whiteness… T2: I look at the price first and my second choice is always White Star[1] …and it is white.
Colour infers quality	B4: I like Iwisa[1] because when I cook it, it becomes very white and thickens quickly and when we eat it in the household, we really feel we have eaten a good maize meal. B5: In my household, we like Iwisa[1] and Papa[1] maize meal because they are white and soft. B6: I like Papa[1] because looking at it, it is white, it becomes thick and makes me full. In the morning, the leftovers in the pot are still white with no discolouration. E5: At first, I used Pride[1], but one day I bought Ideal and found a big difference between the two. Ideal[1] was very white and I continued buying it. A10: I like white maize meal because it makes the relish look attractive in the plate and the white maize meal makes it easy for you to see if it is contaminated. A1: I like white maize meal because the yellow maize meal does not have a good taste like the white one. A5: I like the white maize meal because it is easy for you to identify the texture. A2: I like the white maize meal because it is the colour we are used to and at home we eat the white maize meal. T1: I like the Iwisa[1] maize meal because of its whiteness and others are brownish and I like this one because it is white and soft. T2: I look at the price first and my second choice is always White Star. It gets thick very easily and it is white.

[1]Maize meal trade mark

Interestingly, the whiteness of the colour is also linked to other specific attributes of maize meal quality, as described in the following statements:

- White and soft.
- Become very white, thickens quickly …we feel we have eaten a good maize meal.
- It becomes thick and makes me full.

- In the morning the leftovers in the pot are still white with no discolouration.
- It makes the relish look attractive in the plate.
- It is to see if the maize meal is contaminated.
- Yellow maize meal does not have a good taste like the white one.
- Easy to identify the texture.
- White is the colour we are used to, and at home we eat the white maize meal.

The attribute characteristics that are related to economy, including the ability to thicken quickly, softness, feeling of fullness and usability of leftovers, were indicated by Boipatong, one of the informal settlements of lower income. The hedonic-related characteristics were noted by the settlements of higher income.

According to the literature, appearance relates to the visual properties of a product, including basic attributes such as size, visual shape, colour, visual texture, gloss, transparency, cloudiness and perceived flavour (Lawless & Heymann, 1998:796; Imram, 1999:227). Most of these attribute characteristics (concept elements) were noted by the respondents in the current study. Imram (1999:227) observed that appearance attracts consumer attention during food choice decision-making, and is accordingly used as a screening mechanism by consumers, which is true for all these settlements, although for different reasons, as indicated.

6.3.7 Packaging size

The elements to describe the packaging size concept were indicated as provisioning of maize meal for a specific period, household size, affordability and product safety/ shelf life. To prevent repetition, the latter was described as part of the concept of product safety/ shelf life (Chapter 6 Table 7).

It was indicated that purchases were made mostly for the period of a month at a time, although purchases for a day ("…I just buy the one I find on special so that at least I can have something to eat for the day"), a week and two weeks were indicated by Eatonside, one of the lower-income informal settlements. In this informal settlement, packaging size is determined by the money available (affordability) for purchasing at that stage, while in Boipatong, more economical choices are considered, e.g., the purchasing of larger sizes if available at a cheaper price. In all the settlements a relationship is suggested between the packaging size of maize meal purchased and the size of the household.

Table 7: Packaging size as concept

Concept elements	Statements from respondent groups
Provisioning for a specific period	B1: …and 5kg can last for three weeks… B3: …25kg is the only size which will manage the whole household for a month. B5: I buy 5kg… and it lasts the whole month. E6: I buy 12,5kg because I have many children, but the 12,5kg gets finished within a week. B7: We buy 12,5kg …and it lasts the whole month. E4: Sometimes when I don't have enough money for one of them, I just buy the one I find on special so that at least I can have something to eat for the day. E7: I buy 12,5kg so that it can last the whole month. E8: I buy 12,5kg and it lasts two weeks. A2, A4, A5, A10: I buy 12,5kg. It lasts for a month. A1: I buy 5kg. It lasts for a month. A5: When you buy a particular size, you consider the size of the family and how long it will last. A9: I buy 12,5kg. It lasts for a month. T1: I buy 25kg so that it can last, maybe three to four months in case I can't get it again in the store. T3: I buy 10kg for the whole month.
Household size	B1: I buy smaller sizes and in the household we are not many. B3: We are nine in the household so 25kg is the only size which will manage the whole household for a month. B4: Sometimes I can buy looking at the size of the family… buy the large size if I find it cheap. B5: I buy 5kg. We are five in the household and it lasts the whole month. B7: We buy 12,5kg because we are eight in the household. A5: When you buy a particular size, you consider the size of the family… A7: You look at the size of the family and buy that size. T2: I use to buy 10kg. My younger brother moved in with me, so I changed from 10kg to 12,5kg. If I have an extra family member, I always go for a larger size.
Affordability	B4: Sometimes I can buy looking at the size of the family… buy the large size if I find it cheap. B8: I buy 12,5kg because I don't work and I want it to last. E2: …25kg and it depends on the money I have. E4: …12,5kg, but when I don't have enough money I buy 5kg.

Please take note that the respondent groups apply regulation of packaging size as a procedure to manage product safety/ shelf life (please consult Chapter 6 Table 7 for application).

In general, consumers appreciate a good deal such as the purchasing of a generic product, which is usually packed in larger sizes (Silayoi & Speece, 2004:621). According to Leibtag and Kaufman (2003:2), low-income consumers often take advantage of the benefits linked to volume discounts where a lower price per unit is obtained. In contrast, the Joseph Rowntree Foundation (JRF) (1994:1) points out that low-income consumers buy smaller sizes on a more frequent basis. From the current study, it is clear that the benefits of volume discounts are not obtainable by households with strict financial constraints but only when more lenient circumstances prevail. It is clear that purchases are guided by what is affordable to the low-income households, as decided by the packaging size, and not necessarily by what is cheaper per unit, as in volume discounts.

6.3.8 Texture

From the textual data obtained from the focus group discussions, the complexity of the perceptions for texture is indicated by the identification of seven describing concept elements. The elements to describe texture have been indicated as texture quality, quick thickening ability, good thickening ability, satiety value, versatility of texture, affordability and convenience (Chapter 6 Table 8).

All three of the informal settlements indicated the ability of maize meal to thicken quickly during cooking as an important quality indicator. Eatonside, one of the lower income groups, indicated this characteristic as a screening mechanism to guide purchase choice.

The ability of a maize meal to become suitably thick during cooking was indicated as important by all respondent groups. This property allows the use of smaller quantities of maize meal to obtain the required thickness, which has implications for affordability for these low-income households. This product characteristic was also indicated as an important discriminator for purchasing choice. The thickness of the cooked product links directly to the satiety value obtained through consumption. Further indicators for texture quality included softness and smoothness. However, texture was indicated as being of less importance than taste by one respondent from the more affluent Alexandra informal settlement, while several respondents from the Tsutsumani formal settlement indicated taste as a more important attribute than texture.

Table 8: Texture as concept

Concept elements	Statements from respondent groups
Texture quality	B5: In my household, we like Iwisa[1] and Papa[1] maize meal because they are soft and white. A9: From way back, as I compare the thickening ability of Iwisa, currently it takes time to thicken. This does not make me change to another brand because I am so used to Iwisa. Changing to another brand, you find that the taste is different from the one I am used to. A5: The maize meal should cook the way I like it and I should enjoy it. A5: I like the white maize meal because it is easy for you to identify the texture. T1: …because I like the texture and the softness of the maize meal. T2: …and the texture is nice and the taste is also nice. T3, T5: It is soft and smooth. T3: The taste, the texture, the smoothness.
Quick thickening ability	B2: I like Iwisa because when I cook it, it becomes thick quickly… E1: I use Ideal because… and it thickens quicker when cooking it. E4, E6: I use Ideal because it thickens quickly when I cook it. E8: I use Ideal because it becomes thick (more) quickly than the other maize meals. A5: The soft texture does not thicken quickly. A7: The soft texture does not thicken quickly; the medium texture will be fine.
Good thickening ability	B2: I like Iwisa because when I cook it, it becomes thick quickly and it also makes us full. B5: They become thick easily… B6: I like Papa because… and when I cook it, it becomes thick… B6: …2 cups are enough to make it thick. E5: I get satisfied with Ideal maize meal… and thicken easily when cooking. A10: The maize meal should be thick when cooking pap. A5: In my culture (Sepedi) it is nice when it is thick. T3: I like Shaya[1] because it is tasty, and you do not have to use more maize meal to cook. T3: …but some maize meal when you put in the boiling water, it doesn't become a bit harder. You keep on putting, putting it doesn't become hard and you know which one is good for your family.
Satiety value	B2: I like Iwisa[1] because when I cook it, it becomes thick quickly and it also makes us full. B6: I like Papa because… and when I cook it, it becomes thick and makes me full. A1: I also use Ace because it is good for me, it gives me energy and lasts longer.

Versatility of texture	B3: I also like Iwisa[1], more especially that when you make soft porridge it becomes like Mageu[2] drink. B5: …we like cooking soft porridge with them (Iwisa[1] and Papa[1]). T3: …and even in the soft porridge with milk, it is very nice, and it is a bit coarse. You can make a lovely pap for braai.
Affordability (use of smaller quantities)	B4: …5kg can last for three weeks because the maize meal is thick. When I use two or two and a half cups it becomes thick, therefore it can last for three weeks. A1: I also use Ace[1] because it is good for me… it does not get finished faster like other maize meals T2: I like Ace[1] because it is strong, you don't have to use more maize meal and it also helps me to save because you don't have to use lots and lots of it when you cook. T3: I like Shaya[1] because… and you do not have to use more maize meal to cook.
Convenience	B1: …good texture. E5: …thickens easily when cooking. A2: It does not form lumps when cooking. A7: The sot texture does not thicken quickly and medium texture will be fine.

[1]Maize meal trade mark

[2]Traditional sour maize meal based drink

Texture, an attribute perceived by visual or tactile senses, varies widely between food products (Lawless & Heymann, 1998:808). Consumers have clear expectations regarding product texture, in which memory plays an important role. Any changes from the expected are noted immediately, and regarded as a defect in quality (Mojet & Köster, 2005:251, 264), which is directly confirmed by the results of the current study. Visually perceived texture includes smooth, lumpy, rough, flaky, crystalline and viscose properties (Tuorila, 2007:35).

The findings from the two higher household income groups, Alexandra and Tsutsumani, correlate with the fact that texture is usually regarded as of less importance than taste as these two attributes are perceived in an integrative manner. However, this was not true for the two informal settlements of lower income, Boipatong and Eatonside. Texture is perceived as more pronounced when flavour is mild, or when not meeting expectations (Tuorila, 2007:35), which confirms the importance of this characteristic for maize meal.

6.3.9 Product safety/ shelf life

Several concept elements, including sensory attribute indicators, expiry date/ freshness and limited packaging size, were indicated as descriptors for the concept product safety/ shelf life (Table 9):

Table 9: Product safety/ shelf life as concept

Concept elements	Statements from respondent groups
Sensory attribute indicators	B5: I once bought Impala[1] maize meal. A lot of it was left in the pot and it had a bad smell. No comments from Eatonside regarding product safety/ shelf life. A10: I like white maize meal because… it makes it easy for you to see if it is contaminated. T3: It tastes like it is old maize meal. T3: …when I taste Ace[1] it has change, it has a bad smell like it has expired even if it has not expired. …everyone in the house was complaining, so I changed to a new brand.
Expiry date/ freshness	B4: I once looked at the expiry date and the date was still new, and I bought the maize meal but when I got home and used it, the maize meal was not fresh. B7: The same thing happened to me. A7: If the maize meal has expired we do not buy it. A9: I go to another shop to look for a fresh one. T2: It is like the expired one, stored for ages.
Packaging size limited	B1: I use 5kg because we are three in the household. I don't buy 12,5kg because I think it will get spoiled/ rot because you know that when maize meal stays for a long time it developed moulds. B1: I don't want it to stay for a long time. B4: But I prefer buying small sizes to avoid spoilage. A7: I buy 5kg. I buy the maize meal that does not stay for a long time. I want it to get finished and buy another one.

[1]Maize meal trade mark

The indicators reported for product safety/ shelf life include sensory attributes, limitation of packaging size and adherence to expiry date. It is notable that the Eatonside informal settlement did not indicate product safety/ shelf life as an important factor during maize meal purchasing choice. Whether this can be ascribed to the quick rotation of maize meal (this settlement indicated the purchasing of the smallest packaging sizes) (Chapter 6 Table 2), or consumption in disregard of product safety, is not known. The following discussion pertains therefore only to the other three settlements.

Taste and smell are perceived as important discrimination tools for maize meal quality, using descriptors such as "bad smell" for the raw as well as cooked product, and "taste like old maize meal". The whiteness of the maize meal was also indicated as a quality indicator (Chapter 6 Table 6) as any contamination is easily visible.

The purchasing of limited package sizes is indicated as a general procedure to prevent maize meal spoilage. By limiting the package size to ensure consumption within a limited period, even the absence of ideal storage conditions will not compromise the quality of the product. The purchasing of larger packaging sizes is indicated only on a few occasions. The product expiry date is simultaneously applied as an indicator of freshness, and if it is not satisfactory, purchasing will take place elsewhere. From the literature, it is clear that food freshness is often used as an indicator of food quality (Young, 1999:2-3), just as it is by the settlements in the current study through application of sensory attributes, limiting of the packaging size purchased and adherence to the product expiry date.

Consumers worldwide are becoming more aware of food safety risks such as allergies due to genetic modification (Yeung & Morris, 2001:170), through food scares (Dobson *et al.,* 1994:32), and contamination (Yeung & Morris, 2001:179). Consumers tend to exclude or limit consumption of what they perceive as potentially contaminated products through not purchasing the product, changing the brand or changing to similar products (e.g. from poultry to fish), absorbing the risk because of the importance of product, or reducing consumption (Yeung & Morris, 2001:179). The references to these aspects in this study are in relation to contamination that could be detected because of the whiteness of the maize meal (presence of moulds), a bad smell of leftovers, an old taste and the lapse of the expiry date (§ 6.3.9).

6.3.10 Brand loyalty

The concept brand loyalty is described by the respondent groups in terms of strength of brand loyalty, set of preferred brands, willingness to pay for brand, and links with other attributes (Chapter 6 Table 10).

Silayoi and Speece (2004:609) reported brand loyalty as having a direct correlation with product involvement, indicating that the higher the involvement level of the consumer with a product, the stronger the brand loyalty, owing to product knowledge and benefits perceived for the product. For this study, all the respondents participating in the current study have been screened for habitual maize meal consumption on a daily basis, in addition to being the person responsible for the purchasing of maize meal for the households.

Table 10: Brand loyalty as concept

Concept elements	Statements from respondent groups
Strength of brand loyalty	B4: I will tell you about Iwisa[1] maize meal, I like it and it is tasty. B2: I go to the next shop to look for it. B6: …if the maize meal is not available, I wait until it is available and meanwhile I use mabela. B8: If it is not available, I cook rice. B5: If it is not available I would rather buy bread because I know my children will not eat another maize meal. B7: I do ask them because children like pap, and if you change they complain. B11: …you cannot buy a cheaper product which will not satisfy you. E2: I just buy any maize meal that is cheap that I find in the shop. E5: I'm satisfied with Iwisa[1] maize meal. E1: I'm satisfied with Ideal[1] maize meal. E5, E6, E7: My children are so used to this maize meal, if I buy a different brand they will complain that this maize meal is not good. A5: If you have children in your household you raise them eating a certain brand and they get used to it, so there is no way that they will want a different brand. A7: I grew up eating Ace[1] and my children are also eating it and I will not listen to any complaints about Ace[1]. A1, A2, A4, A5, A7, A9: If I do not find the brand I always buy, I go to the next shop. A5: I you have children in your household, you raise them eating a certain brand. They get used to it, so there is no way that they will want a different brand. A1-5, A7, A9: I buy the one that I am used to. A1: I buy only Iwisa[1]. A1: I am so used to the maize meal that I buy, so I buy that one because other brands I don't know how they taste like. Sometimes you will find that the taste is worse with other brands. A5: I don't change the brand if some characteristics of the product are different. A7: I always stick with the brand I am used to. I don't change to a different brand. T1: I go to another shop if Iwisa[1] is not available. T1: I buy 25kg, so that it can last, may be three to four months in case I can't get it again in the store. T3: It is the brand, but if it happens that the brand is not available I buy the other brand but just 1kg for that night. The next day I will go and search for Shaya[1] maize meal.
Set of preferred brands	B1: I like Iwisa[1] and Ideal[1] maize meal. E1: I only buy either Ideal or Iwisa[1] maize meal. E5: When Ideal is not available I buy Iwisa[1]. E7: Ideal[1] is the same as Iwisa[1]. So if ideal[1] is on special I take Ideal[1] and leave Iwisa[1].

Buy most affordable (in set)	B1: When I go into the shop I compare the prices for the two maize meals, because this month Iwisa[1] will be cheap and the following month Ideal[1] is the one cheaper. These two brands are the same to me. B7: When I go into the shop and buy Iwisa[1], I look how cheap it is… Even the children like Iwisa[1] and Papa[1] maize meal because these two are the same. E2: I buy Mamas[1] because it is the cheapest. E6: I look for Ideal[1] because it is cheaper. E7: It depends on which maize meal is on special…
Willingness to pay for brand	B11: You cannot buy a cheaper product which won't satisfy you. A7: You buy the maize meal that you are used to, whatever the price it may be, it does not matter. T2: I look at the price first… T2: The difference is the price. That's why I am saying between Ace[1] and White Star[1] I would choose Ace[1] maize meal because they are nearly the same to me. T3: Because if I can check the prices I will choose the one I don't want.

[1]Maize meal trade mark

Nearly all the respondents from the four groups indicated distinctive preferences, although more adamantly so in the slightly higher income groups. If the brand preferred is not available, the respondents either go to a different shop in order to obtain the product, or postpone purchasing and use product replacements like bread, rice or mabela (sorghum porridge) in the interim. It is often noted that the children will complain if the brand is changed. In Alexandra, the informal settlement of higher income, brand loyalty is so strong that it is indicated that even if some of the brand characteristics change, the same brand will still be purchased. Sometimes maize meal is purchased in bulk to ensure household availability for a longer period. In this settlement, it is noted that tradition in product use is important, and is transferred from the mother to the children. These results are a confirmation of the findings of Silayoi and Speece (2004:609), indicating that if a product is not available, the purchaser displays a willingness to postpone purchase or to travel to another store to obtain a specific brand (Silayoi & Speece, 2004:609).

It is of interest that several of the respondents, especially those from the two informal settlements of lower income (Boipatong and Eatonside), indicated a set of preferred brand options, from which the cheapest is then purchased. This approach was also indicated by one respondent from Tsutsumani, but none from Alexandra. Overall, a willingness to pay for a certain brand in order to obtain specific characteristics was indicated by respondents from both Alexandra and Tsutsumani.

It seems that various respondents prefer a certain brand, but do not buy blindly. Brand is often linked with a need for additional attributes or product characteristics, e.g., the cheaper product that thickens more quickly is chosen. Freshness, whiteness, and a texture that is not so soft (satiety value), is also linked with brand.

Although brand loyalty reports the degree of conscious or unconscious commitment of a consumer to consistently repurchase the same brand within a product class, even to the point where the consumer is willing to pay more for the product (Bitpipe, 2009), the low-income consumers are mostly price conscious.

The literature iterates that few consumers make specific brand choices before entering a store. Consumers are loyal to a small number of brands only, but several brands can be acceptable to a consumer. Experience with different brands creates the possibility that a brand will be found that meets the demands of the consumer, who will tend to remain satisfied with the product (Silayoi & Speece, 2004:609).

6.3.11 Nutrient content

The perceptions of the respective respondent groups regarding nutrient content are indicated by the concept elements energy, nutrients and additional benefits (Table 11).

Nutrient content is perceived mainly as providing energy, with slight reference to other nutrients. Several benefits are noted in this context. Carbohydrate-rich foods are the main source of nutrition for low-income households (Sosa & Hough, 2006:591) to ensure the provision of energy, which is paramount for survival. Within the South African context, it refers to the consumption of bread and soft or stiff maize meal porridge on a regular basis (Bureau for Food and Agricultural Policy (BFAP, 2008:59). These energy-dense diets high in refined grains are often followed, being less expensive and more affordable (Drewnowski & Darmon, 2005:900).

Low-income consumers often follow a monotonous diet “to keep them not hungry” (Ballantine, Rousseau & Venter, 2008:5). Fruits and vegetables are more expensive and therefore not included to the extent necessary in the diet (Oldewage-Theron *et al.,* 2006:800), but these foods are also less available in low-income communities.

Table 11: Nutrient content as concept

Concept elements	Statements from respondent groups
Energy	See satiety value (§1.1 in this table)
Nutrients	T2: Calcium for the bone and iron for the blood. T1: It also helps with their sight. T3: As it is a carbohydrate by itself, it also has vitamins and calcium. T5: I eat Papa maize meal because it has calcium and iron and it can boost someone's immune system when it is low.
Additional benefits	B7: When I go into the shop and buy Iwisa[1]… and it gives me energy to be strong. B4: My child is diabetic. If the maize meal is not available she eats sorghum (mabela). A1: I also use Ace[1] because it is good for me, it gives me energy. T2: …and it is healthy… T3: To grow up big and strong. T5: There are all kinds of goodness in it.

[1]Maize meal trade mark

Some of the nutrients that maize meal is perceived to contain are misconceptions. Benefits noted for the nutrient intake include energy "to grow up big and strong", and "all kinds of goodness".

6.3.12 Combined concepts

Three concepts, product acceptability, value for money and product quality, were indicated as food product attributes of importance to low-income consumers (Chapter 4). Although none of these concepts were discussed during any of the focus group discussions, it is of interest to note that literature describe these concepts through the combination of other concepts.

6.3.12.1 Product acceptability

Consumers use food product information selectively during the purchasing evaluation process. This approach relates to meeting needs for specific beliefs and predispositions. The acceptance or rejection of a food product is therefore determined by the compatibility of consumer needs and the food product attributes provided by the product (Earle, Earle & Anderson, 2001:201; Sheth & Mittal, 2004:3, 4).

Taste acceptance by all household members is important, especially in a low-income household, to prevent food wastage. Only when no other food is available in the household, will foods of very low status of which the taste is perceived as not acceptable, be consumed (Dobson *et al.,* 1994:32). Literature relating to low-income households further indicates that foods with a good filling quality, or those perceived as good value for money, are preferred to other liked and affordable foods. Dobson *et al.* (1994:31) further report that low-income consumers give preference to quantity over quality.

6.3.12.2 Value for money

Modern consumers prefer value-added food products to greater quantities of food (Imram, 1999:224). This approach stands in direct contrast to the preference for quantity over quality reported for the low-income consumers (Dobson *et al.,* 1994:31).

Cant, Brink and Brijball (2002:28) mention four options through which consumers obtain value:

- Product purchased at low price;
- Obtaining a product that is highly valued for the benefits represented;
- Obtaining a quality product at an agreed price based on a trade-off between a benefit and a cost component;
- Obtaining total benefits for the price paid, or sacrifice made.

As the reality of the low-income consumer contains monetary restrictions that reflect in food choice, these consumers often do not want price benefits built into the food products they purchase (Alwitt & Donley, 1996:81; Hughes, 2002:11). The products purchased by these consumers display a mix of quality attributes matching the available food budget and non-monetary preferences (Hughes, 2002:3, 5). Food that is less prone to quick deterioration is perceived by low-income consumers as better value for money, because of lack of refrigerated storing space (Dobson *et al.,* 1994:13-14), and is managed by attention to the expiry date and limiting of the packaging sizes for maize meal purchased.

6.3.12.3 Product quality

Food quality can be defined as (i) objective quality as pertaining to the chemical analysis of the product, and (ii) subjective quality, which includes taste, product enjoyment and satisfaction of consumer experiences. Further criteria applicable to food evaluation include freshness and absence of toxic agents, which can be assessed in an objective and subjective manner (Young, 1999:2-3; Altmann, 2002:287).

Consumers apply criteria for product quality in a subjective manner, with different meanings and importance to individuals. Quality reports a summary of all product characteristics including the nature of the product, packaging, labelling and branding, and the warranties and legal protection (Altmann, 2002:286-287).

In a setting of higher affluence, more importance is attached to ecology and conservation, health, and luxury needs and pleasure. This includes aspects such as concern about environmental problems, diminishing natural resources and recycling; youthfulness and health food; and self-satisfaction and fulfilment through increased attention to high quality, brand loyalty and fun experiences during shopping and eating. Following this trend, successful new food products need to be …"associated with health, taste well and give enjoyment, and at least be neutral to ecology and natural resources" (Altmann, 2002:287).

6.3.13 Linking between various concepts and concept elements

It is of interest to explore the interrelatedness of the concepts/ elements describing the food product attributes (concepts) satiety value and affordability, as indicated of high importance to low-income consumers in informal settlements (Chapter 5), excluding the combined concepts product acceptability, value for money and product quality.

To reduce the complexity of the analysis, the concepts were reported in a similar sequence as applied earlier in this document, based on the results from Chapter 5. In order to obtain a clear picture, only responses from the urbanised informal settlements were inculcated into these tables. To sustain the focus of this study, an exhaustive analysis of embedded descriptors is not pursued.

6.3.13.1 Satiety value and affordability

From the summary presented in Table 12, the link between satiety value (the feeling of fullness and the absence of hunger for a longer period of time that limits the amount of meals that have to be taken and cooking fuel needed), and texture (including satiety value provided by the thick texture of the cooked maize meal), is clear. Based on these findings it can further be argued that as it is important to the low-income consumers to use the smallest amount of maize meal to obtain the desired thickness which will provide satiety value, a link exist between satiety value and affordability.

The perceptions reported for affordability seems to be imbedded in nearly all the food product attributes (Table 12), with texture playing a surprisingly important role.

Table 12: Describing satiety value and affordability from revealed food product attribute links

Refer Table	Concepts	Elements	Insights by principal investigator
1	Satiety value	Feeling of fullness Absence of hunger for a longer period of time	Necessitating only one or two meals/ day (saving maize meal, cooking fuel)
2	Affordability/ price	Price determines packaging size	Expendable money available for food used to purchase the packaging size to meet needs (e.g. household size) for a specific period
		Prevention of waste	Smaller packaging to prevent spoilage of product Purchase just enough for the period (money available for other purposes) Acceptability of leftovers Acceptability of product characteristics to all household members/ take turns to eat favourite maize meal If product attributes change, and not acceptable, brand is changed
3	Taste	Familiarity/ acceptability of taste	If product taste change, and is not acceptable, brand purchased is changed to ensure that product will be consumed by household members
		Versatility of use	Can use maize meal as accompaniment to various side dishes, no other product needed to be purchased
4	Convenience/ ease of preparation	Preparation time	As the product thickens quickly, less time is needed for preparation, saving cooking fuel
		Usability of leftovers	The acceptability of the leftovers for consumption provides convenience for not having to prepare additional food, saves cooking fuel, no wastage
5	Household influence	Preferences of household members Money available	Preferences should be met to ensure that no additional products have to be purchased Determine purchase choice Price determines purchase choice, especially by the two poorer informal settlements

6	Appearance/ colour	Colour infers quality	Quality perception is linked to the whiteness of the colour, quick thickening (convenience), satiety value, and no wastage as leftovers can be consumed, acceptable to all household members. Influence brand choice
7	Packaging size	Provision for a specific period Household size Affordability	A specific packaging size is purchased to meet the needs for household size for a specific period Respondents were sure of the quantity needed Aim is to buy enough for a specific period, but when money is insufficient, a smaller packaging size is purchased
8	Texture	Quick thickening ability Satiety value Convenience Good thickening ability Affordability (use of smaller quantities) Versatility of texture	Ability of the maize meal to thicken quickly is important, provides satiety value and energy, guiding brand choice. Texture should not be too soft To use the smallest quantity to obtain the needed thickness is of importance as the package size will meet needs for a longer period (more cost efficiency implied). Influence brand choice Brands linked to specific textures
9	Product safety/ shelf life	Sensory attribute indicators Expiry date/ freshness Packaging size limited	Changes in taste, smell, and colour are used as indicators to determine acceptability of the product. Linked to expiry date. Purchase packaging sizes that will be used within a reasonable period to prevent spoilage
10	Brand loyalty	Strength of brand loyalty Set of preferred brands Buy most affordable (in set) Willingness to pay for brand	Influenced by expendable income available for purchasing of food. If possible, a specific brand will be purchased, even if purchasing needs to be postponed due to non-availability. An alternative will be used for a limited period. See within context of “set of preferred brands” Low-income consumers indicated a set of acceptable brands of which the cheapest/ product on special will be purchased as available Influenced by expendable income available for purchasing of food
11	Nutrient content	Provision of energy	The feeling of fullness and absence of hunger for a longer period of time limits the amount of meals to be taken/ day

Affordability, relating to the expendable amount of money available for purchasing the starch staple-type food maize meal, is linked to:

- satiety value (limiting amount of meals to consumer / day) and energy provision,
- packaging size that can be purchased to meet household needs,
- preventing any wastage through acceptability of taste and leftovers by all household members,
- short preparation time,
- use of small quantities of maize meal due to good thickening ability (that extends the period for which provisioning is made by a specific packaging size, or that makes it possible to purchase package at a more affordable price to provide for the required period of time) and
- no spoilage.

The reported "set" of preferred brands from which the cheapest is purchased to best meet the needs of the target population, provide a good option to ensure that a product with standardised characteristics that would be acceptable to all household members, is obtained at the most affordable price.

6.3.13.2 Taste

As taste is recognised as generally exerting a major influence on food behaviour (EUFIC, 2005:2) and as the most important determinant of food choice (Bogue *et al*., 1999:313), the findings in this thesis is of interest. As taste can be evaluated only after purchasing, various market signals such as brand, price and quality labels are applied as indicators for predicted taste experience (Brunsø, Bredahl, Grunert & Scholderer, 2005:86-87), as is memory (Harker, 2001:2). In order to understand the importance of taste to low-income consumers, the link between taste and other food product attributes are explored (Table 13).

Table 13: Describing taste from revealed food product attribute links

Refer Table	Concepts	Elements	Insights by principal investigator
2	Affordability/ price	Availability of enough money	Money available determine brand purchased Product used to is purchased, disregarding the price
		Prevention of waste	Household members do not find it acceptable if the characteristics of the brand usually consumed has changed. Brand is changed
3	Taste	Familiarity/ acceptability of taste	Taste characteristics linked to a specific brand, taste

			of other brands not known Familiarity of taste is important, not acceptable if changed Taste associated with colour of maize meal
		Versatility of use	Can eat without accompaniments/ with variety of accompaniments (suitable for various occasions) Brand linked
		Willingness to pay	Taste is linked to price Price for taste is linked to quality Cheapest of set of brands is purchased (ensure taste acceptability)
4	Convenience/ ease of preparation	Usability of leftovers	Acceptance of leftovers important (implied)
5	Household influence	Preferences of household members	Familiarity of attributes important Attributes brand linked Brand loyal if attributes not changed Important that children are satisfied
		Money available	Implied: the smaller the amount of money available, the higher the influence of the purchasing price
6	Appearance/ colour	Colour infers quality	White maize meal taste better than yellow maize meal
8	Texture	Texture quality	Quality implied as taste, texture, smoothness
		Good thickening ability	Acceptance indicated of taste + good thickening ability
		Versatility of texture	Implied as part of high level of product acceptance
9	Product safety/ shelf life	Sensory attribute indicators	Taste/ smell indicated as criterion to ensure quality
		Expiry date/ freshness	Implied: important to ensure good sensory attributes
10	Brand loyalty	Strength of brand loyalty	Taste is brand linked, taste of other brands not known Acceptability of product attributes brand linked If attributes of brand change, consumers change brand to maintain familiarity of attributes Traditional brand loyalty (few)
		Set of preferred brands	Set contain different brands with similar attributes
		Buy most affordable of set	Purchase cheapest one of the set

From Table 13 a double sided picture is emerging regarding the importance of taste to most of the low-income consumers:

- The familiarity of taste, over repeated purchases, is important;
- Familiarity of taste is perceived to be related to a specific brand/ set of brands, the brand will be changed if the taste of the product change;
- The colour of the maize meal is perceived as an indicator of the taste of the product and the higher level of acceptability thereof (yellow maize meal is perceived as less acceptable);
- Taste is perceived as an indicator of quality, and is linked to price;
- The brand purchased is related to the amount of money available for the purpose, stipulated as the cheapest of the set of preferred brands.

In only a few cases were brand indicated as receiving unqualified loyalty. Even taste, as linked to the choice of a specific brand/ set of brands, is regulated by the availability of money to purchase maize meal. It is clear from the foregoing why satiety value and affordability have been indicated as more important to low-income consumers that taste. In summary it can be noted that the less affluent low-income consumers will most probably purchase the product that is most affordable from the set of acceptable brands that provides the best thickening properties and the best taste.

6.3.13.3 Core and augmented food product characteristics

The interrelatedness between satiety value and affordability, as well as the integration thereof within the other investigated attributes, confirms the importance and relevance of these concepts to the formulation of food products for low-income consumers, as indicated by the quantitative findings in Chapter 5. Based on the work by Painter (2007:13-14), it can be argued that satiety value (imbedding texture), affordability and taste are functioning as core product characteristics during the purchasing choice for the starch staple-type food, maize meal, by low-income consumers. These attributes are driving the purchasing decisions of the target population, while the other food product attributes function as augmented product characteristics to provide product guarantees and additional benefits.

6.4 CONCLUSIONS

Overall, no distinctive inherent content differences in the way in which the different groups understood the different food product attributes (concepts) were revealed, indicating a similarity in meaning. Based on these findings, it was not necessary to relocate the quantitative data

obtained from the analytical survey (reported in Chapter 5) to alternative sections, as the requirements for content validity between groups had been met (Babbie & Mouton, 2002:123; Bless *et al.,* 2007:157). This is clear from the fact that the range of meanings within the individual concepts (food product attributes) had mostly been covered.

However, the combined food product attributes (concepts), including product acceptability (§6.3.12.1), value for money (§6.3.12.2) and product quality (§6.3.12.3), were not described during the different focus groups.

To address this aspect it is suggested that the respective individual concepts, as imbedded within the stated combined concepts, are identified from literature (Leire & Thidell, 2005:1068). These concepts could then be interpreted in terms of the meanings reported for the respective concepts and related concept elements from the developed textual data. This information can then be integrated to report the meaning of the "concept clusters", relating directly to the target consumers' understanding of the respective food product attributes (concepts) during the purchase of maize meal.

In application within the context of this study, the concepts indicated as important to low-income consumers to ensure product acceptability, as indicated by literature (see §6.3.12.1) and previous findings (Chapter 4), include the filling quality (satiety value) of maize meal (Chapter 6 Table 1), the ability to obtain an adequate quantity (of food) for a needed period (affordability) (Chapter 6 Table 2) and taste acceptance by all household members (Chapter 6 Table 3). These aspects are of significant value in supporting the integrated findings reported later in this study (Chapter 7).

Following a similar approach, value for money (§6.3.12.2) refers to obtaining products at low price (Chapter 6 Table 2), with valued product benefits, and the trade-offs made between these aspects. Low-income consumers prefer quantity over quality, a mix of attributes perceived as quality matching the available budget, and good shelf life (Chapter Table 8). Quality (§6.3.12.3), according to Altmann (2002:286-287) reports the sum total of the characteristics of a product for a specific target market.

The indicators of quality for maize meal, as perceived by low-income consumers in informal settlements, are reported by the outcome of this study. The sum total of the quality indicators (food product attributes indicated as needed, as embedded in the value attached to each) can therefore not be indicated at this stage, but will be visible from the integration provided in the following chapter (Chapter 7).

6.5 REFERENCE LIST

ALTMANN, M. 2002. Product policy. In PADBERG, DI, RITSON, C & ALBISU, LM. (Eds). *Agro-food marketing*. Oxon. CAB.

ALWITT, LF & DONLEY, TD. 1996. *The low-income consumer: adjusting the balance of exchange*. Thousand Oaks, CA. SAGE.

BABBIE, E & MOUTON, J. 2002. *The practice of social research. South African ed*. Cape Town. Oxford University Press.

BALLANTINE, N, ROUSSEAU, GG & VENTER, DJL. 2008. Purchasing behaviour as a determinant of food insecurity in Klipplaat. *Journal of Family Ecology and Consumer Sciences* 36:1-8.

BFAP (Bureau for Food and Agricultural Policy). 2008. *The South African agricultural baseline: part 2.* [WWWdocument – 27/06/2008].
URL http://www.bfab.co.za/reports/BFAP%20Baseline%20%20-Consumer%20Economics%20June%202008%20part%202.pdf

BITPIPE. 2009. *Brand loyalty.* [WWWdocument – 06/02/2009].
URL http://www.bitpipe.com/Brand_Loyalty.html

BLESS, C, HIGSON-SMITH, C & KAGEE, A. 2007. *Fundamentals of social research methods: an African perspective.* 4th ed. Cape Town. Paarl Press.

BOGUE, JC, DELAHUNTY, CM, HENRY, MK & MURRAY, JM. 1999. Market oriented methodologies to optimise consumer acceptability of cheddar-type cheeses. *British Food Journal* 101(4):301-316.

BRUNSØ, K, BREDAHL, L, GRUNERT, KG & SCHOLDERER, J. 2005. Consumer perception of the quality of beef resulting from various fattening regimes. *Livestock Production Science* 94:83-93.

CANDEL, MJJM. 2001. Consumers' convenience orientation towards meal preparation: conceptualization and measurement. *Appetite* 36:15-28.

CANT, M, BRINK, A & BRIJBALL, S. 2002. *Customer behaviour: a South African perspective.* Cape Town. Juta.

CORBIN, J & STRAUSS, A. 2008. *Basics of qualitative research*. 3rd ed. Los Angeles. SAGE.

DOBSON, B, BEARDSWORTH, A, KEIL, T & WALKER, R. 1994. *Diet, choice and poverty: social, cultural and nutritional aspects of food consumption among low-income families*. Centre for Research in Social Policy. Loughborough University of Technology. London. Family Policy Studies Centre.

DREWNOWSKI, A & DARMON, N. 2005. Food choices and diet costs: an economic analysis. *Journal of Nutrition* 135(April):900-904.

EARLE, M, EARLE, R & ANDERSON, A. 2001. *Food product development*. Cambridge. Woodmead.

EUFIC (European Food Information Council). 2005. The determinants of food choice. *EUFIC REVIEW* 2005/04.

FINCH, H & LEWIS, J. 2005. Focus groups. In RITCHIE, J & LEWIS, J. (Eds). *Qualitative research practice: a guide for social science students and researchers*. London. SAGE.

GAEDE, R. 2008. Personal discussion with Prof Gaede on the extraction of richness from qualitative data. Vaal University of Technology. Vanderbijlpark. 17 September.

GRUNERT, KG. 2003. *How changes in consumer behaviour and retailing affect competence requirements for food producers and processors*. Denmark. The Aarhus School of Business. MAPP-Centre for Research on Consumer Relations in the Food Sector.

GUTHRIE, JF, LIN, B, REED, J & STEWARD, H. 2005. Understanding economic and behavioural influences on fruit and vegetable choices. *Amber Waves* 3(2):36-41.

HARKER, R. 2001. *Consumer response to apples.* Paper presented at the Washington Tree Postharvest Conference in Wenatchee, WA, March 13-14.

HENNING, E, VAN RENSBURG, W & SMIT, B. 2004. *Finding your way in qualitative research.* Pretoria. Van Schaik.

HUGHES, D. 2002. *Consumer interests and the reform of the CAP: a review of relevant documentation and research*. [WWWdocument-27/08/2006.
URL http://ec.europa.eu/consumers/reports/rep02_en.pdf

IMRAM, N. 1999. The role of visual cues in consumer perception and acceptance of a food product. *Nutrition & Food Science* 99(5):224-230.

JAEGER, SR. 2006. Non-sensory factors in sensory science research. *Food Quality and Preference* 17:132-144.

JRF (Joseph Rowntree Foundation). 1994. Eating on a low income. *Social Policy Research* 66(November):1-6. [WWWdocument-19/02/2008].
URL http://www.jrf.org.uk/knowledge/findings/socialpolicy/SP66.asp

LAWLESS, HT & HEYMANN, H. 1998*. Evaluation of food: principles and practises*. New York. Chapman & Hall.

LEIBTAG, ES & KAUFMAN, PR. 2003. *Exploring food purchase behaviour of low-income households: how do they economize*. Current issues in economics of food markets. United States Department of Agriculture. Economic Research Service. Agriculture Information Bulletin No 747-07. Washington DC.

LEIRE, C & THIDELL, Å. 2005. Product-related environmental information to guide consumer purchases: a review and analysis of research on perceptions, understanding and use among Nordic consumers. *Journal of Cleaner Production* 13:1061-1070.

MARUMO, K. 2008. *Food product attributes of importance to low-income households during purchasing*. MTech (Food & Beverage Management) dissertation. Vaal University of Technology. In progress.

MOJET, J & KÖSTER, EP. 2005. Sensory memory and food texture. *Food Quality and Preference* 16:251-266.

MORGAN, DK. 1996. *Focus groups as qualitative research*. 2nd ed. Thousand Oaks, CA. SAGE.

NEL, JH & STEYN, NP. 2002. *Report on South African food consumption studies undertaken amongst different population groups (1983-2000): average intakes of foods most commonly consumed.* Pretoria. Department of Health. Directorate Food Control.

OLDEWAGE-THERON, WH, DICKS, EG & NAPIER, CE. 2006. Poverty, household food insecurity and nutrition: coping strategies in an informal settlement in the Vaal Triangle, South Africa. *Public Health* 120:795-804.

PAINTER, K. 2007. *An analysis of food-chain demand for differentiated farm commodities: implications for the farm sector*. Centre for Sustaining Agriculture & Natural Resources. Washington State University.

READER'S DIGEST UNIVERSAL DICTIONARY. 1988. London. The Reader's Digest Association.

SATIETY VALUE. 1929. Old and Sold Antiques Digest. [WWWdocument-18/08/2007].
URL http://www.oldandsold.com/articles27n/obesity-42.shtml.

SHETH, JN & MITTAL, B. 2004. *Consumer behaviour: a managerial perspective.* 2nd ed. Singapore. Thomson South-Western.

SILAYOI, P & SPEECE, M. 2004. Packaging and purchase decisions: an exploratory study on the impact of involvement level and time pressure. *British Food Journal* 106(8):607-628.

SOSA, M & HOUGH, G. 2006. Sensory acceptability of menus and sweet snacks among children and adults for low- and medium-income households in Argentina. *Food Quality and Preference* 17:590-597.

SSA (Statistics South Africa). 2005. *Census survey 2001*. [WWWdocument - 25/03/2008].
URL http://www.statssa.gov.za

TAYLOR-POWELL, E & RENNER, M. 2003. *Analyzing qualitative data*. Programme development & evaluation No. G3658-12. University of Wisconsin-Extension. Madison, WI. Cooperative Extension Publishing Operations. [WWWdocument-20/03/2008].
URL http://www1.uwex.edu/ces/pubs

TUORILA, H. 2007. Sensory perception as a basis of food acceptance and consumption. In MACFIE, H. (Ed). *Consumer-led food product development*. New York. Woodhead.

YEUNG, RMW & MORRIS, J. 2001. Food security risk: consumer perception and purchase behaviour. *British Food Journal* 103(3):170-186.

YOUNG, JA. 1999. Marketing the intrinsic quality of the product. In Global quality assessment in Mediterranean aquaculture. Proceedings of the workshop of the CIHEAM networks on technology of aquaculture in the Mediterranean (TECAM) and socio-economic and legal aspects of aquaculture in the Mediterranean (SELAM). Barcelona, Spain, 29 November.