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THE INFLUENCE OF COLD CHAIN FOOD PACKAGING ON CONSUMERS' PURCHASING  
DECISIONS: AN EXPLORATORY INVESTIGATION

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(B HONS CONSUMER SCIENCES)

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## SUMMARY

Previous literature shows that packaging influences consumer's perceptions and purchase behaviour. The purpose of this study was to explore a group of South African consumers' perceptions of the cold chain packaging of food and the influence of these on their decision to purchase a product. In order to gain a better understanding of consumers' purchasing behaviour as influenced by packaging of cold chain food, a qualitative exploratory study was conducted. Twenty-five individual semi-structured interviews were conducted with consumers who do the shopping for themselves or their families. A projective technique was also used to question consumers. The first objective was to explore consumers' perceptions of the packaging of cold chain foods. It was found that the packaging of cold chain food influences consumers' perceptions and expectations of the product and that these perceptions influence consumers' purchasing decisions. Consumers have specific expectations regarding the packaging of cold chain food and these expectations have an important influence on consumers' perceptions of packaging. The second objective was to explore the influence that the packaging of cold chain foods has on the consumer's purchase decision. Some consumers are influenced by the packaging and packaging attributes of cold chain food while others are not influenced by the packaging when making purchasing decisions regarding cold chain food. The last mentioned group of consumers was influenced by non-packaging attributes such as price and brand loyalty or previous experience with a brand, indicating that product loyalty and experience play an important role in purchase decisions of cold chain food. This study can be used as a basis for a larger study to obtain more comprehensive results that can be generalized to a wider population. Manufacturers and product developers can use this information to address consumers' needs with regard to the development of food packagings. Furthermore, this study shows that consumers should be an important part of the process of developing and improving the packaging of cold chain food. Thus consumers' needs and expectations should be incorporated into these processes of packaging development. The value of this research lies in the fact that food packaging can be developed to suit consumers preferences and better fulfill their needs. As packaging contributes to the price of products and consumers therefore pay extra for it, the consumer will benefit from this research.

## OPSOMMING

Vorige literatuur het bewys dat verpakking verbruikers se persepsies en aankoopgedrag beïnvloed. Die doel met die studie was om 'n groep Suid Afrikaanse verbruikers se persepsies rakende die verpakking van koue-ketting voedsel te ondersoek asook die invloed van verpakking op hulle aankoop besluite. 'n Kwalitatiewe verkennende studie is gedoen om 'n beter begrip te kry van verbruikers se aankoopgedrag soos beïnvloed deur verpakking van koue-ketting produkte. Vyf-en-twintig individuele semi-gestruktureerde onderhoude is met verbruikers wat inkopies doen vir hulself of hulle gesinne gevoer. 'n Projektiewe tegniek is ook gebruik om verbruikers te ondervra. Die eerste doelwit was om verbruikers se persepsies rakende verpakking van koue-ketting voedsel te verken. Daar is bevind dat die verpakking van koue-ketting voedsel verbruikers se persepsies en verwagtinge van produkte beïnvloed en dat die persepsies verbruikers se aankoopbesluite beïnvloed. Verbruikers het spesifieke verwagtinge van die verpakking van koue-ketting voedselprodukte en hierdie verwagtinge het 'n belangrike invloed op verbruikers se persepsies oor verpakking. Die tweede doelwit was om die invloed van verpakking van koue-ketting voedsel op verbruikers se aankoopbesluite te verken. Sommige verbruikers word beïnvloed deur die verpakking of eienskappe van verpakking van koue-ketting voedsel terwyl ander nie deur die verpakking beïnvloed word wanneer aankoop besluite geneem word rakende koue-ketting voedsel produkte nie. Laasgenoemde verbruikers is beïnvloed deur nie-verpakkings verwante eienskappe soos prys, handelsnaam lojaliteit of vorige ervaring met die handelsnaam wat aandui dat lojaliteit teenoor 'n produk en ervaring van 'n produk 'n belangrike rol in besluite rakende koue-ketting voedsel speel. Hierdie studie kan gebruik word as 'n basis vir 'n groter studie om meer omvattende resultate te verkry wat verteenwoordigend kan wees van 'n groter populasie van verbruikers. Vervaardigers en produkontwikkelaars kan hierdie inligting gebruik om verbruikers se behoeftes aan te spreek in verband met die ontwikkeling van voedselverpakking. Verder wys die studie dat verbruikers 'n belangrike deel moet uitmaak van die proses waartydens verpakking van koue-ketting voedsel ontwikkel en verbeter word. Dus moet verbruikers se behoeftes en verwagtinge in hierdie prosesse van ontwikkeling van verpakking geïnkorporeer word. Die waarde van die navorsing is geleë in die feit dat voedselverpakking ontwikkel kan word om aan verbruikers se behoeftes en voorkeure te voldoen. Aangesien verpakking bydra tot die prys van die produk en die verbruiker dus meer betaal daarvoor, sal die verbruikers baat by die navorsing deur beter waarde vir geld te ontvang.

## KEY WORDS

Cold chain food, consumer purchasing decision, food packaging, perceptions.

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## CHAPTER 1

### INTRODUCTION

## Chapter 1

### Introduction

#### 1.1 Background and motivation

Research on the influence of packaging on consumers' perceptions and purchasing decisions has been conducted internationally in Europe (Rundh, 2005:670-684; Ampuero & Vila, 2006:102-114), America (Underwood & Klein, 2002:58-68; Underwood, 2003:62-72) and Asia (Silayoi & Speece, 2004:607-628; Texiera & Badrie, 2005:508-514; Silayoi & Speece, 2007:1495-1517;). This research, however, cannot be generalized to the South African consumer and market. South Africa is a developing country (Baumann, 2008:1) consequently, South African consumers are seen to be different to consumers from the industrialized world. Therefore, this study proposed to collect data on consumer's perceptions of packaging of cold chain food and to determine the influence of packaging on consumers' purchasing decisions.

The way consumers shop has changed significantly due to the economic relief in South Africa. A period of economic relief was evident between 1996 and 2006 and has influenced consumers in various ways (ACNielsen, 2006). One clear influence on the Fast Moving Consumer Goods (FMCG) markets has been the increased prevalence of refrigerator ownership which has expanded from 48% to 68% during the mentioned period (ACNielsen, 2006). This increase has given more consumers the ability to buy food products from the cold chain. Therefore, it can be assumed that the number of consumers buying cold chain food has increased. The above confirms Rundh's (2005:671) findings that there is the potential for further growth in the packaging industry due to consumers' new life styles, smaller households and consumers' search for convenience. The cold chain is generally considered to be the transport and storage chain between the initial production and the final consumer of temperature-controlled perishable goods (Heap, 2006). It is a method used to ensure the preserved state of refrigerated perishable foodstuffs (Billiard, 2003:10). The present study focused on the packaging of these foods and the results were compared to international research.

According to research conducted internationally, modern women are more pressed for time as they are, apart from working in the labour market, responsible for domestic activities such as food purchasing and preparation (Lake *et al.*, 2006:7). In most countries women are still mainly responsible for household shopping and they are the main decision makers for frequently purchased packaged food products (Silayoi & Speece, 2004:614). Due to the fact that

consumers have less time to spend on food preparation as a result of more demands on time, their demand for convenience is increasing. This has pressured the food industry to supply better processed and preserved foods (Zink, 1997:3), such as cold chain packaged food. Bardic (2003:76) advised that in the future, packaging should support quick preparation for time-pressured consumers.

Convenience is one of the dominant trends in the packaged food industry where new forms and sizes of packaging are taking convenience to higher levels than before (Anon, 2004). Therefore, a study on food packaging as a way of providing for consumers' need for convenience is highly relevant to the current changing lifestyle situation of the South African consumer. Gray and Guthrie (as quoted by Prendergast and Pitt,1996:61) seem to be convinced that packaging is one of the most influential factors on the purchasing decisions of the consumer in the store. When shopping for food products, consumers are confronted with a variety of cold chain food that inevitably influence their purchasing decision. This study aimed to determine the influence that the packaging of cold chain foods has on consumers' purchasing decisions.

### **1.1.1 Packaging and cold chain food**

According to Brody and Lord (2000:1) and Texeira and Badrie (2005:508), one of the main reasons for packaging food is to contain the food product and to protect and/or preserve the product with an appropriate material/structure. This is done to protect the product against contamination or loss, act as vehicle for easier and safer method of transportation as well as dispensing of the product (Brody & Lord, 2000:153; Texeira & Badrie, 2005:508). The cold chain is also a method used to secure the preserved state of refrigerated/frozen perishable foodstuffs from production (Billiard, 2003:10) to consumption.

Frozen and chilled foods in the cold chain have an image of quality and freshness, specifically in meat, fruit and vegetable sectors as compared to canned or dried products (Fellows, 2000:419). Through applying methods such as the cold chain and packaging, perishable foods are preserved, microbiological safety issues are considered, while quality changes and the rate of spoilage of the product is reduced and sensory qualities are improved for the consumer (Brody & Lord, 2000:147). Thus it can be concluded that the application of the cold chain and packaging of food products has considerable advantages for the food consumer.

Packaging has the additional function of displaying the product on the shelf and capturing the attention of the consumer when choices have to be made between many competing products (Rundh, 2005:680). Hence, when a consumer has to make a choice of a food product where the product is not always sold in its final (prepared) form, the consumer sometimes has to rely on the package to develop a perception of the final product (Underwood & Ozanne, 1998:208).

It is evident from the literature that packaging fulfils the functions of displaying the product and acquiring the attention of the consumer and, furthermore, that the consumer uses packaging to develop perceptions of food products (Silayoi & Speece, 2004; Texeira & Badrie, 2005; Ampuero & Vila, 2006). However, it is uncertain whether the specific packaging of cold chain food fulfils similar functions as found with packaging in general due to a lack of research in this regard. Furthermore, consumer research regarding food packaging in South Africa is limited and thus this study was intended to obtain research that is applicable within the South African context. Due to findings from previous literature, literature regarding consumers perceptions of packaging of food was investigated.

### **1.1.2 Consumers' perceptions of packaging of cold chain food**

Consumers' intention to purchase depends on the degree to which consumers believe that the product can satisfy their expectations about the product used (Kupiec & Revell, 2001:8). Packaging, labelling, product information and stereotypes can influence food product expectations (Silayoi & Speece, 2007:1497). Silayoi and Speece (2004:607) stated that the package design must guarantee a favourable consumer response. This implies that the package must conform to consumers' expectations thereof. People perceive products and product attributes according to their own expectations (Schiffman & Kanuk, 2007:160).

Perception is the process through which the consumer receives, organises and interprets information input to create a meaningful and coherent picture of the world (Hawkins *et al.*, 2007:282; Mostert & Du Plessis, 2007:94; Schiffman & Kanuk, 2007:152). Consumers perceive food products while they buy, prepare and consume them and subsequently perceptions are formed (Sijtsema *et al.*, 2002:568). These perceptions are comprised of visual observations of the person and characteristics of the product (Sijtsema *et al.*, 2002:568). During the perceptual process the stimuli consumers are confronted with are transferred through the senses into the consciousness and thoughts and concepts are formed (Wright,

2006:109). Thus it can be concluded that the stimuli the consumer is confronted with leads to the perceptions that consumers have of food products (Wright, 2006:109).

Previous research on packaging has focused on the effect of graphic design elements or characteristics of packaging such as colour, typography, graphic shapes and images (which are sensory stimuli) on consumers purchasing decisions. However, structural elements/ characteristics like manufacturing materials, closing systems, size and shape were excluded (Ampuero & Vila, 2006:104). Additionally Texeira and Badrie's (2005:511) research showed that the majority of respondents were concerned that the packaging material could adversely affect the quality or performance of a food product. It is apparent that some structural elements such as packaging material influences consumers' perceptions and is likely to influence their purchasing decision. Therefore, consumers' perceptions of different types of packaging materials of cold chain food were gathered in order to understand their purchase behaviour.

### **1.1.3 Packaging of cold chain food and consumers' purchasing decision**

Decision-making has become increasingly complex for consumers due to commercial global integration in the market place (Lysonski *et al.*, 1996:10). In other words there is a wealth of choices for the consumer to choose from in the store environment and all the competitors are contending for the consumer's attention (Lysonski *et al.*, 1996:10). Ampuero and Vila (2006:112) found that the way consumers see or perceive competitive products will affect their purchasing decisions. Thus consumers' perceptions regarding the packaging of cold chain food will influence their decision to purchase these products.

Additionally, it was found that once a package has affected consumers' perceptions, this will guide their attitude towards products and consequently determine their final purchasing decision (Ampuero & Vila, 2006:112). Previous research has described packaging at the point of purchase as fulfilling the role of a silent salesman of food products (Pilditch, 1973:3, Silayoi & Speece, 2004:607; Ampuero & Vila, 2006:103). Therefore, purchasing decisions are to a great extent influenced by packaging of food products (Pilditch, 1973:3, Silayoi & Speece, 2004:607; Ampuero & Vila, 2006:103).

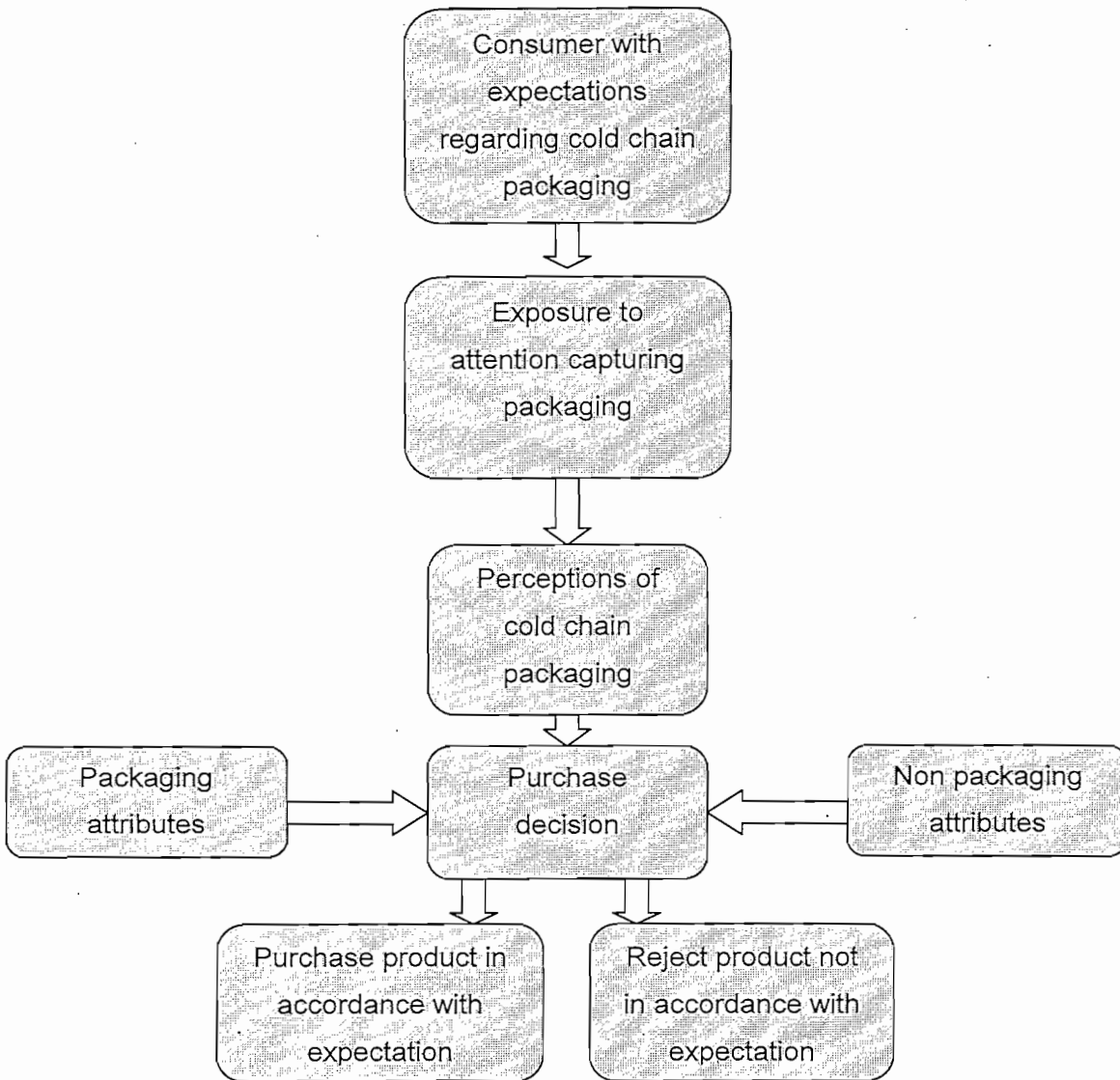
Packaging that stands out on the shelf (attractive packaging) captures the attention through the broad selection of competitive products and affects the consumer's purchasing decision (Silayoi & Speece, 2004:607). Capturing of the consumers' attention as a response to their senses

forms part of the perception of the consumer (Solomon, 2007:49). As a result, the attention capturing aspects will affect both the consumer's perception and purchasing decision regarding that particular product (Solomon, 2007:49).

Hence, the visual impact of the package is of great importance in the final consumer choice (Texeira & Badrie, 2005:513). Due to this manufacturers and retailers risk losing sales if their product packaging is seen as being less attractive by consumers (Prendergast & Pitt, 1996:7). Furthermore, appropriately delivered information on packaging (Silayoi & Speece, 2004:607), brand name or popularity of the product and quality of the package or the type of packaging influence consumers' purchasing decisions (Texeira & Badrie, 2005:510). However, it is uncertain whether the above findings can be applied to packaging of cold chain food.

From the above it can be summarized that the present study aims to determine how packaging of cold chain food influences consumers' purchasing decisions. The present study will, therefore, focus on consumer perceptions regarding the packaging of cold chain food and to explore the influence that the packaging of cold chain food might have on consumers' purchasing decisions. In addition this study proposed a conceptual framework suggesting that packaging has an influence on consumer's perceptions of the packaging (Figure 1.1). These perceptions are formed when the consumer with certain expectations regarding cold chain food packaging is exposed to the attention capturing packaging.

The perceptions of the packaging of cold chain food influences consumers' purchase decisions. Essentially there are other factors that might play a role in the purchase decision that are not related to the packaging such as factors and considerations personally related to each consumer. Non packaging attributes, not falling within the scope of this study, also play a role in the purchasing decisions of the consumer. Thus Figure 1.1 shows that consumer perception as well as packaging and non packaging attributes influence consumers' purchasing decisions of cold chain food. If a cold chain product is not perceived as expected after exposure to the packaging the product will be rejected, while products perceived as expected will be accepted, ultimately leading to a purchase. Chapter 2 will provide a thorough discussion of the concepts presented in Figure 1.1 according to the literature.



**Figure 1.1: Conceptual framework of consumers' purchasing decisions as influenced by packaging of cold chain food products**

## 1.2 Problem statement

Research regarding packaging in general and its influence on purchase decisions and consumers perceptions thereof have been studied previously. Nevertheless, there is no research available with regard to the influence of packaging of cold chain food on consumers' perceptions and purchasing decisions, especially in the South African context. This could be critical in the sales of cold chain packaged food products as information regarding consumers' purchasing decisions could give significant insight into the way packaging could be improved or changed. In order to determine the influence of packaging of cold chain food on consumers' purchasing decisions, consumers' perceptions regarding these products need to be gathered. Furthermore, previous related research was conducted internationally and thus cannot be directly applied to the South African consumer. This is due to the fact that South Africa is a developing country and thus South African consumers are seen to be different to consumers from the industrialised world. Moreover, it is evident that research is needed to determine whether packaging of cold chain food influences consumers' purchasing decisions within a South African context.

Due to the limited nature of research on this topic, the present study is exploratory in nature and the results cannot be generalized to a wider population. However, the exploratory data of the study could be employed into a quantitative survey, rendering results that can be universal to the South African consumer. By conducting such research the importance of the packaging of cold chain food on consumers' perceptions and purchasing decisions can be better understood and be brought to the attention of retailers and manufacturers. Insight derived from this research could assist manufacturers with knowledgeable ways in which packaging of cold chain food could be improved. This knowledge could benefit the consumer because the product packaging of cold chain food could be improved to meet the consumers' expectations thereof. As a result consumers' purchasing decision as influenced by packaging could be better understood and this knowledge can be applied in marketing strategies. More importantly consumer products and packaging could be better developed to suit a variety of consumer preferences and for the diverse nature of consumers within the South African market.

## **1.3 Aim and objectives**

### **1.3.1 Aim**

The main aim of the study was to explore the influence of the packaging of cold chain food on the purchasing decisions of a sample of South African consumers.

### **1.3.2 Objectives**

In order to reach the aim of the study the following objectives were formulated:

- To explore a sample of South African consumers' perceptions of the packaging of cold chain foods and to determine if these agree with advantages intended by manufacturers;
- To explore the influence that the packaging of cold chain foods has on a sample of South African consumers' decision to purchase and to compare these to findings from international research.

## **1.4 Structure of the mini-dissertation**

This mini-dissertation is presented in article format. Chapter 1 provides a brief background and motivation, emphasizing the importance of this study and demonstrating the lack of current knowledge on the subject that can be applied in a South African market. Chapter 2 gives a literature review on the topic of cold chain food packaging and consumers' purchasing decisions. Chapter 3 is presented in a research article format and provides a discussion of the relevant literature, methodology and results of the research. The references and reference lists included in Chapter 3 were done according to the editorial prescriptions of the British Food Journal (included in Appendix F). A concluding discussion of the study is provided in Chapter 4, which also includes possible applications of the results and recommendations for future research.

## **1.5 Authors' contributions**

The study reported in this mini-dissertation was planned and executed by a team of researchers. The contribution of each researcher is given in the following table:

Table 1.1: Authors' contributions to the study

Name	Role in the study
S. SPANGENBERG.	Author, formulated and conceptualized the study, responsible for literature research, the gathering and interpretation of data, descriptive analysis and the writing of this mini-dissertation.
DR. M. VAN DER MERWE.	Supervisor and co-author, supervising descriptive analysis and interpretation of the data as well as the completion of this mini-dissertation. Also assisted in organizing sponsorships and funds to enable the study.
DR. H. DE BEER	Co-supervisor, supervising the completion of this mini-dissertation.

The following is a statement from the co-authors confirming their individual roles in the study and their permission for the article to form part of this mini- dissertation.

*I declare that I have approved the article included in this study, that my role in the study, as indicated above, is representative of my actual contribution and that I hereby give my consent that it may be published as part of the Masters mini-dissertation of Miss S. Spangenberg.*

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---

Dr H. de Beer  
Co-supervisor

## 1.6 References

ACNIELSEN. 2006. Economic climate boosts FMCG spend. <http://www.bizcommunity.com/PressOffice/PressRelease.aspx?i=358&ai=10907> Date of access: 09 Apr. 2008.

- AMPUERO, O. & VILA, N. 2006. Consumer perceptions of product packaging. *Journal of consumer marketing*, 23(2):102-114.
- ANON. 2004. Convenience foods packaging and serving size trends, the U.S. market for convenience foods. <http://packagedfacts.com/Convenience-Foods-Packaging-928716/> Date of access: 22 Jan. 2007.
- BARDIC, A. 2003. Packaging trends: packaging by design. *The national provisioner*. 70-76, Jan.
- BAUMAN, T. 2008. South Africa as developing country: implications for Socio-Economic Policy in the Second Decade. <http://www.brcs.co.za/South%20Africa%20as%20a%20Developing%20Country.doc>. Date of access: 22 Apr. 2008.
- BILLIARD, F. 2003. New developments in the cold chain: Specific issues in warm countries. *Equilibrium*:10-14. *Equilibrium*, 10-14. <http://www.iifiir.org/en/doc/1049.pdf>. Date of access:08 Apr 2008.
- BRODY, A.L. & LORD, J.B. 2000. Developing new food products for a changing marketplace. 1<sup>st</sup> ed. Boca Raton, Fla.: CRC Press. 496p.
- FELLOWS, P.J. 2000. Food processing technology-principles and practice. 2nd ed. Cambridge: Woodhead. 575 p.
- HAWKINS, D.I., MOTHERSBAUGH, D.L. & BEST, R.J. 2007. Consumer Behavior: building marketing strategy, McGraw-Hill Irwin, New York. 790 p.
- HEAP, R.D. 2006. Cold chain performance issues now and in the future. Available at: <http://www.iifiir.org/en/doc/1077.pdf> Date of access: 08 May. 2008.
- KUPIEC, S.R. & REVELL, B. 2001. Measuring consumer quality judgements. *British food journal*, 103(1):7-22.

- LAKE, A.A., HYLAND, R.M., MATHERS, J.C., RUGG-GUNN, A.J., WOOD, C.E. & ADAMSON, A.J. 2006. Food shopping and preparation among the 30-somethings: whose job is it? *British food journal*, 108(6):475-486.
- LYSONSKI, S., DURVASULA, S. & ZOTOS, Y. 1996. Consumer decision-making styles: a multi-country investigation. *European journal of marketing*, 30(12):10-21.
- MOSTERT, P.G. & DU PLESSIS, P.J. 2007. Introduction to Marketing: a South African perspective. Pretoria: Mustard House Marketing. 298 p.
- PILDITCH, J. 1973. The Silent Salesman. 2nd ed. London: Business Books Limited. 156 p.
- PRENDERGAST, G. & PITT, L. 1996. Packaging, marketing, logistics and the environment: are there trade-offs. *International journal of physical distribution and logistics management*, 26(6):1-14.
- RUNDH, B. 2005. The multi-faceted dimension of packaging. *British food journal*, 107(9):670-684.
- SCHIFFMAN, L.G. & KANUK, L.L. 2007. Consumer Behavior. 9<sup>th</sup> ed. Upper Saddle River: Prentice-Hall. 561 p.
- SIJTSEMA, S., LINNEMAN, A., VAN GAASBEEK, T., DAGEVOS, H. & JONGEN, W. 2002. Variables influencing food perception reviewed for consumer-oriented product development. *Critical reviews in food science and nutrition*, 42(6):565-581.
- SILAYOI, P. & SPEECE, M. 2004. Packaging and purchase decisions. *British food journal*, 106(8):607-628.
- SILAYOI, P. & SPEECE, M. 2007. The importance of packaging attributes: a conjoint analysis approach. *European journal of marketing*, 41(11/12):1495-1517.
- SOLOMON, M. R. 2007. Consumer behaviour: buying, having and being. 7th ed. Upper Saddle River, NJ: Prentice Hall. 654p.

TEXEIRA, A.P. & BADRIE, N. 2005. Consumers' perception of food packaging in Trinidad, West Indies and its related impact on food choices. *Journal of consumer studies*, 29(6):508-514, Nov.

UNDERWOOD, R.L. 2003. The Communicative power of product packaging: creating brand identity via lived and mediated experience. *Journal of Marketing theory and practice*, 11(4):62-76.

UNDERWOOD, R.L. & KLEIN, N.M. 2002. Packaging as brand communication: effects of product pictures on consumer responses to the package and brand. *Journal of marketing theory and practice*, 10(4):58-68, Fall.

UNDERWOOD, R.L. & OZANNE, J.L. 1998. Is your package an effective communicator? a normative framework for increasing the communicative competence of packaging. *Journal of marketing communications*, 4(4):207-220.

WRIGHT, R. 2006. Consumer Behaviour. London: Thomson. 512 p.

ZINK, D.L. 1997. The impact of consumer demands and trends on food processing. *Emerging infectious diseases*, 3(4):1-3.

## CHAPTER 2

### LITERATURE REVIEW

## **Chapter 2**

### **Literature review**

#### **2.1 Introduction**

Packaging and its functionality as well as different aspects of packaging that have an influence on consumers' purchase decisions are studied in this chapter to show the importance of research on this topic. Figure 1.1 in Chapter 1 presents a conceptual framework of the most important concepts of this study and how these concepts are related to the research undertaken in this study. The literature review is presented based on this conceptual framework in order to better explain the scope of the research and data that was gathered.

#### **2.2 Packaging and cold chain food**

Food packaging is an essential part of the product as it is the consumers' first exposure to it (Rundh, 2005:673) (Figure 1.1). Suitable packaging materials are used to protect and preserve food products (Brody & Lord, 2000:1; Silayoi & Speece, 2004:610; Texiera & Badrie, 2005:508) during storage and transportation and to provide protection against contamination and potential losses while also acting as a method of dispensing the product (Brody & Lord, 2000:153; Texeira & Badrie, 2005:508).

##### **2.2.1 Functionality of food packaging**

Packaging proves its ability to preserve a food product by providing a barrier between the food and the environment (Fellows, 2000:466). It also has to control the transmission of light, temperature changes, moisture and gasses as well as movement of microorganisms and insects (Fellows, 2000:466). This is especially true for perishable products, such as food from the cold chain. According to Prendergast and Pitt (1996), packaging has the important logistical function of protecting and preserving the food product inside. A package that protects the contents from shifting and breakage and is easy to dispose of offers an important marketing advantage to the product (Hogan, 2001:1). Therefore, packaging must at all times accommodate the functions of the contained food (Brody & Lord, 2000:153). Thus packaging is essential and has by time of its disposal distributed major benefits to the consumer (Williams, 2005:1).

Brody and Lord (2000:153) specified some additional substantial functions of food packaging which include communication, unitization, product use and convenience. Moreover, packaging has the function of displaying the product on the shelf to acquire the attention of the consumer when choices have to be made between competing products (Rundh, 2005:680). Apart from the logistical functions packaging also has a marketing function (Silayoi & Speece, 2007:610). Packaging communicates brand personality through structural and visual elements, including package materials, brand logo, colours, fonts, product descriptions and shapes (Underwood, 2003:62). It was mentioned by Silayoi and Speece (2004:607) that there is a challenge for researchers to integrate packaging into an effective purchasing model, by trying to understand packaging elements as important marketing communication tools. Consequently this shows the importance of understanding the consumer's purchasing decision as influenced by packaging of food which was determined in this study.

### **2.2.2 Cold storage**

Packaging of specifically cold chain food was the topic of interest within this study. In Chapter 1 (1.1) an explanation of the term cold chain was provided. Added to the preservative function of packaging as was mentioned earlier by Silayoi and Speece (2007:1498), the refrigeration and freezing of food are additional methods of preservation. Within the cold chain, refrigeration is an additional method of preservation in order to extend storage life and maintain freshness (Billiard, 2003:10). Notwithstanding the general use of refrigeration for preservation purposes, no specific research on the packaging of refrigerated food and the influence thereof on consumers' perceptions and purchasing decisions is available, as far as can be ascertained.

During cold storage the original properties of highly perishable foods such as meat, dairy and seafood products, as well as moderately perishable foods such as fruit and vegetables are maintained (Billiard, 2003:10). Frozen and chilled foods (described as food products from the cold chain for the purpose of this study) have an image of quality and freshness, specifically in the meat, fruit and vegetable sector compared to canned or dried products (Fellows, 2000:419). Microbiological safety issues, quality changes and the rate of spoilage of the food products are reduced and sensory qualities are improved for the consumer at low temperatures (Brody & Lord, 2000:147). Thus the intention with cooling or freezing is to extend the shelf life (Brody & Lord, 2000:149) and provide consumers with safe, wholesome food products (Billiard, 2003:10).

In 2003 it was found that 81% of the global population lives in developing countries and most of these countries have a warm (equatorial, tropical or Mediterranean) climate which means that cold storage (refrigeration) is essential (Billiard, 2003:12). One can subsequently conclude that the maintenance of the cold chain and effective and sufficient packaging of food products have considerable advantages for both the food consumer and producers. Consequently, a study regarding the packaging of cold chain food is highly relevant since the South African consumer's use of refrigerated and frozen food has increased the past few years. This assumption is made due to the increase in refrigerator ownership among South Africans (ACNielsen, 2006).

### **2.3 Consumers' expectations of the packaging of food**

People tend to perceive products and product attributes according to their own expectations (Schiffman & Kanuk, 2007:160) (Figure 1.1). Therefore, consumers' expectations are highly relevant in a study focusing on consumer perceptions. Stimuli that conflict with expectations often receive more attention, meaning that consumers notice stimuli which they do not expect (Schiffman & Kanuk, 2007:160). Since the sensory receptors receive the sensory stimuli during the perceptual process to capture the consumers' attention (Solomon, 2007:49), expectations will influence consumers' perceptions. Consumers' expectations are the result of learning and previous experience that can exert a large influence and can be difficult to change (Hawkins *et al.*, 2007:298). The conclusion can thus be drawn that consumers will notice when something about a packaging is not in accordance with their expectations and that can lead to the rejection of a product (Figure 1.1).

Food appearance may not be consciously identified by consumers as a major sensory attribute. Yet, any deviation from what is expected of the food product is prone to lead to rejection of a product (Schröder, 2003:239). The same can be said about food packaging. According to Lai (as quoted by Kupiec & Revell, 2001:8), consumers' intention to purchase a product also depends on the degree to which consumers expect the product to satisfy their needs (Figure 1.1). Moreover, the extent to which the consumption experience confirms or disconfirms to expectations, impacts on the satisfaction which in effect influences the possibility of future purchases (Blackwell *et al.*, 2006:205).

## 2.4 Consumers' perceptions of the packaging of food

The consumer forms a perception of a product when a sensory stimuli captures his or her attention when exposed to the product (Solomon, 2007:49) (Figure 1.1). Packaging is one key food product attribute perceived by consumers (Silayoi & Speece, 2004:610) as a result of its attention capturing attributes. According to Sijtsema *et al.* (2002:567), consumers perceive products while purchasing them thus the formed perception is based on sensory observations of the person as well as product characteristics. When consumers are processing stimuli, their sensory perceptions are stimulated in such a way that they focus on the possible outcomes and sensory experiences associated with the brand (Underwood, 2003:69).

Furthermore, product attributes are perceived by consumers and are critical factors in the food choice process (Kupiec & Revell, 2001:8). Underwood and Klein (2002:58) found evidence suggesting that consumers use packaging as an extrinsic signal to initiate intrinsic product attributes (Figure 1.1). Thus consumers use the total product packaging to determine and form an opinion of the quality of the product on the inside. Perception is the process through which the consumer receives, organises and interprets information input to create a meaningful and coherent picture of the world (Hawkins *et al.*, 2007:282; Mostert & Du Plessis, 2007:94; Schiffman & Kanuk, 2007:152). In the case of food, the packaging information is received, organised and interpreted into a perception regarding the food product.

Consumer's perceptions form one of the most important factors that influence buying behaviour (Zeithaml, 1988:16; Mostert & Du Plessis, 2007:94). Furthermore, the way in which a consumer perceives a product is reality to that specific individual despite what the generally accepted idea might be (Mostert & Du Plessis, 2007:94). People only perceive a small part of the stimuli to which they are exposed and the stimulus that is selected depends on consumers' previous experience as it affects their expectations and their motives (Schiffman & Kanuk, 2007:160). Thus it is evident that consumers' perceptions of cold chain food will be influenced by their expectations thereof (Figure 1.1)

An innovative packaging can change the product perception as experienced by consumers and consequently, create a differential advantage as well as a new market position for a brand (Creusen & Schoormans, 2005:63; Rundh, 2005:670). A good example of innovative packaging is "Pringles potato chips" which differs from the majority of competitive packages (Rundh, 2005:670). Therefore, marketers must understand consumers' perceptions of their products (Mostert & Du Plessis, 2007:94; Hawkins *et al.*, 2007:282). Silayoi and Speece (2004:610) also

found that quality judgments of products are largely influenced by product characteristics such as packaging.

When food products are not sold in their final (prepared) form, the consumer sometimes has to rely on the package to develop an impression of the final (prepared) product (Underwood & Ozanne, 1998:208). Thus if a packaging communicates high quality, consumers will transfer this quality perception to the product itself (Silayoi & Speece, 2004:610). For instance, a picture of the product is an essential packaging tool to communicate what is inside the packaging and these product images on packages may enhance taste perceptions for these products (Underwood & Klein, 2002:65).

Evans *et al.* (1996:340) stated that companies need to understand consumers' mind-set orientation. As a result it is important for marketers to recognize that the representation on the product package can affect the consumer's perception thereof (Evans *et al.*, 1996:52; Sijtsema *et al.*, 2002:568). The way consumers perceive packaging depends on communication elements of the packaging (Silayoi & Speece, 2004:610). Hence, it is important to remember that overall features of a package can make a product unique and original (Silayoi & Speece, 2004:610).

## **2.5 Packaging of food and consumers' purchasing decisions**

During shopping, decision-making involves a shopper evaluating the attributes of a set of products and sensibly choosing the one that solves a clearly recognized need (Hawkins *et al.*, 1998:498). Decision-making has become increasingly complex for consumers due to commercial global integration in the market place (Lysonski *et al.*, 1996:10). In other words there is a wealth of choices for the consumer to make a decision from and all the competitors are contending for the consumers' attention (Lysonski *et al.*, 1996:10). Thus the way a consumer sees competitive products will affect his or her purchasing decision (Ampuero & Vila, 2006:112). As a result packaging that stands out on the shelf (attractive packaging) will break through the clutter of competitive products and affect the consumers' purchasing decision (Silayoi & Speece, 2004:624; Texeira & Badrie, 2005:510; Ampuero & Vila, 2006:112).

There is an increase in purchasing decisions made inside the store environment (Underwood & Ozanne, 1998:208; Ampuero & Vila, 2006:103) partly due to some consumers being more involved in the product decision and the more extensive use of product information (Silayoi &

Speece, 2004:624). Therefore, packaging has the potential to communicate and influence consumer choice (Underwood & Ozanne, 1998:208). Consumers want to make informed decisions regarding food quality and safety and want to make choices that help maintain their way of living (Texeira & Badrie, 2005:508). Prendergast and Pitt (1996) acknowledged that packaging is one of the most influential factors that affect the purchasing decisions of the consumer in the store. Once a package has affected consumers' perceptions, this will guide their attitude or opinion about products and consequently determine their final purchasing decision (Ampuero & Vila, 2006:112) (Figure 1.1).

Garber (1995:654) found that choice decisions are context dependent and criteria in the form of information supplied at the point-of-purchase such as text and visuals available on a package may be used by the consumer in order to make a purchase decision. It is estimated that 73% of purchase decisions are made at the point-of-purchase (Rettie & Brewer, 2000:56) and that packaging offers an effective way of conveying product attributes at the point-of-sale (Silayoi & Speece, 2004:610; Underwood & Ozanne, 1998:208). Hence packaging takes on an increasingly important role during decision making at the point-of-purchase, especially when compared to other communication instruments, due to its easy availability (Underwood & Klein, 2002:59). Packaging fulfills the role of silent salesman of food products at the point-of-purchase and purchasing decisions are to a great extent influenced by the packaging (Silayoi & Speece, 2004:607; Ampuero & Vila, 2006:103).

Silayoi and Speece (2004:610) studied the influence of packaging on consumers' food purchasing decisions. Packaging attributes such as visual and informational elements influence purchasing decisions (Figure 1.1) as these elements create an image for the consumer (Silayoi & Speece, 2004:611). The visual elements consist of graphics, colour, size and shape of packaging and the informational elements relates to information provided and technologies used in the package (Silayoi & Speece, 2004:610). Consumers' purchasing decisions are strongly influenced by appropriately delivered information on packaging (Silayoi & Speece, 2004:607; Texeira & Badrie, 2005:510) as well as brand name or popularity of a product and the quality and type of packaging (Texeira & Badrie, 2005:510). Thus it can be concluded that consumers' choices of food are strongly influenced by visual elements of the package (Garber, 1995:653; Silayoi & Speece, 2004:624; Texeira & Badrie 2005:510).

Non-packaging related attributes such as price awareness and price sensitivity, brand loyalty and previous experience of a product as influential factors on consumers' purchasing decision

are not discussed in this literature review as these attributes fall beyond the scope of this study. Multiple market factors and consumer trends point to a heightened role for product packaging in the marketing mix and, therefore, packaging strategy should be the prime brand strategy (Underwood, 2003:73). For this reason consumer research into packaging is necessary and could yield practical information regarding packaging development. This knowledge may ultimately be used to develop packages that conform to consumers' expectations or needs concerning cold chain food.

## References

- ACNIELSEN. 2006. Economic climate boosts FMCG spend. <http://www.bizcommunity.com/PressOffice/PressRelease.aspx?i=358&ai=10907> Date of access: 09 Apr. 2008.
- AMPUERO, O. & VILA, N. 2006. Consumer perceptions of product packaging. *Journal of consumer marketing*, 23(2):102-114.
- BILLIARD, F. 2003. New developments in the cold chain: Specific issues in warm countries. *Equilibrium*:10-14. <http://www.iifir.org/en/doc/1049.pdf>. Date of access: 08 Apr 2008.
- BLACKWELL, R.D., MINIARD, P.W. & ENGEL, J.F. 2006. Consumer behavior. 10<sup>th</sup> ed. Mason, OH: Thomson South-Western. 774p.
- BRODY, A.L. & LORD, J.B. 2000. Developing new food products for a changing marketplace. 1<sup>st</sup> ed. Boca Raton, Fla.: CRC Press. 496p.
- CREUSEN, M.E.H. & SCHOORMANS, J.P.L. 2005. The different roles of product appearance in consumer choice. *Journal of product innovation management*, 22:63-81.
- EVANS, M.J., MOUTINHO, L. & VAN RAAIJ, W.F. 1996. Applied consumer behaviour. 1<sup>st</sup> ed. Harlow, Mass.: Addison-Wesley. 382 p.
- FELLOWS, P.J. 2000. Food processing technology-principles and practice. 2<sup>nd</sup> ed. Cambridge: Woodhead. 575 p.

- GARBER, L.L. 1995. The package appearance in choice. *Advances in consumer research*, 22:653-660.
- HAWKINS, D.I., BEST, R.J. & CONEY, K.A. 1998. Consumer behaviour: building marketing strategy. 7<sup>th</sup> ed. Boston, Mass.: McGraw-Hill. 760 p.
- HAWKINS, D.I., MOTHERSBAUGH, D.L. & BEST, R.J. 2007. Consumer Behavior. New York, NY: McGraw-Hill Irwin. 790 p.
- HOGAN, P.B. 2001. Packaging: fast way to improve customer satisfaction and reduce cost of fulfillment. *Material handling management*, 56(11):59-60.
- KUPIEC, S.R. & REVELL, B. 2001. Measuring consumer quality judgements. *British food journal*, 103(1):7-22.
- LYSONSKI, S., DURVASULA, S. & ZOTOS, Y. 1996. Consumer decision-making styles: a multi-country investigation. *European journal of marketing*, 30(12):10-21.
- MOSTERT, P.G. & DU PLESSIS, P.J. 2007. *Introduction to marketing: a South African perspective*. Pretoria: Mustard House Marketing. 298 p.
- PRENDERGAST, G. & PITT, L. 1996. Packaging, marketing, logistics and the environment: are there trade-offs", *International journal of physical distribution and logistics management*, 26(6):60-72.
- RETTIE, R. & BREWER, C. 2000. The verbal and visual components of package design. *Journal of product and brand management*, 9(1):56-70.
- RUNDH, B. 2005. The multi-faceted dimension of packaging. *British food journal*, 107(9):670-684.
- SCHIFFMAN, L.G. & KANUK, L.L. 2007. Consumer Behavior. 9<sup>th</sup> ed. Upper Saddle River, NJ.: Prentice-Hall. 561 p.

- SCHRÖDER, M.J.A. 2003. Food quality and consumer value: delivering food that satisfies. 1<sup>st</sup> ed. Berlin: Springer. 330 p.
- SIJTSEMA, S., LINNEMAN, A., VAN GAASBEEK, T., DAGEVOS, H. & JONGEN, W. 2002. Variables influencing food perception reviewed for consumer-oriented product development. *Critical reviews in food science and nutrition*, 42(6):565-581.
- SILAYOI, P. & SPEECE, M. 2004. Packaging and purchase decisions. *British food journal*, 106(8):607-628.
- SILAYOI, P. & SPEECE, M. 2007. The importance of packaging attributes: a conjoint analysis approach. *European journal of marketing*, 41(11/12):1495-1517.
- SOLOMON, M. R. 2007. Consumer behaviour: buying, having and being. 7th ed. Upper Saddle River, NJ.: Prentice Hall. 654p.
- TEXEIRA, A.P. & BADRIE, N. 2005. Consumers' perception of food packaging in Trinidad, West Indies and its related impact on food choices. *Journal of consumer studies*, 29(6):508-514.
- UNDERWOOD, R.L. & KLEIN, N.M. 2002. Packaging as brand communication: effects of product pictures on consumer responses to the package and brand. *Journal of marketing theory and practice*, 10(4):58-68.
- UNDERWOOD, R.L. & OZANNE, J.L. 1998. Is your package an effective communicator? A normative framework for increasing the communicative competence of packaging. *Journal of marketing communications*, 4(4):207-220.
- UNDERWOOD, R.L. 2003. The Communicative power of product packaging: creating brand identity via lived and mediated experience. *Journal of marketing theory and practice*, 11(4):62-76.
- WILLIAMS, G. 2005. Australian packaging: issues and trends. Packaging Council of Australia. <http://www.packoun.com.au/issues/issues18.html> Date of access: 10 June 2006.

ZEITHAML, V.A. 1988. Consumer perceptions of price, quality and value: a means-end model and synthesis of evidence. *Journal of marketing*, 52:2-22.

## CHAPTER 3

### RESEARCH ARTICLE

(Written according to the editorial prescriptions of the British Food Journal.)

## **Cold chain food packaging: consumers perceptions and purchasing decisions**

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## Abstract

**Purpose** Due to a lack of research regarding the packaging of cold chain food the purpose of this study was to explore the influence of packaging food products on a sample of (South African) consumers' purchasing decisions, while also exploring their perceptions of these packagings.

**Design** A qualitative, exploratory research approach was chosen. Twenty-five participants were interviewed regarding their perceptions and purchasing decisions of the packaging of cold chain food. A projective technique using packaging of cold chain food was also employed to further explore their perceptions.

**Findings** Participants' perceptions are influenced by packaging of cold chain food and participants have certain expectations of packaging. Participants formed perceptions based on packaging and non-packaging related attributes and these included both positive and negative characteristics that they associate with different types of cold chain food packagings.

**Research implications/limitations** Future research needs to apply the findings of this research on a larger scale and incorporate quantitative methods to allow the results to be generalized to a larger sample of the South African population. Additionally non-packaging related attributes should also be included in the research.

**Originality/Practical implications** The results emphasise that food product developers and manufacturers should seek an understanding of consumers' perceptions of packaging of cold chain food and the influence that the packaging has on purchasing decisions. This research findings and similar future research could help to establish packaging of cold chain food that complies with consumers requirements and needs. Furthermore, packaging contributes to the price and manufacturers should cater for consumers' needs regarding the packaging of cold chain food in order to provide the consumer with value for money.

**Keyword(s):** Cold chain food, consumers, food packaging, perceptions, purchasing decision.

**Article Type:** Research paper

## Introduction

It is important that the food industry becomes aware of factors that drive the purchase intention of the consumer (Texiera and Badrie, 2005). In order to implement consumer-oriented product development, consumer wishes and demands have to be turned into product characteristics (Sijtsema *et al.*, 2002). Underwood (2003) noted that the experiential and functional benefits of packaging may contribute to the development and the strengthening of a relationship between the consumer and a brand. It can, therefore, be seen that the real value of food packaging lies in the fact that it forms an integral part of the product (Ahmed *et al.*, 2005).

Studies have shown that packaging has an effect on consumers' perceptions (Texeira and Badrie, 2005; Ampuero and Vila, 2006). However little work has been done to discover what role packaging plays in the formation of consumer's perceptions regarding food products (Ampuero and Vila, 2006). In addition, packaging is renowned for its influence on the purchasing decisions of the consumer (Silayoi and Speece, 2004) and for the communicative power of product packaging in creating brand identity (Underwood, 2003).

It is evident that there is a relation between packaging and consumers' purchasing decisions. However, most packaging research was conducted internationally in Europe (Ampuero and Vila, 2006; Rundh, 2005), America (Underwood and Klein, 2002; Underwood, 2003) and Asia (Silayoi and Speece, 2004; Texiera and Badrie, 2005; Silayoi and Speece, 2007) and cannot be generalized to represent the South African consumer and market. Research related to food packaging and consumers' purchasing behaviour in South Africa has not yet been sufficiently explored. Therefore, the necessity for a study of this nature to be conducted locally to determine the South African consumer's behaviour regarding packaging of cold chain food was identified. The cold chain is generally considered as the transport and storage chain between the initial production and the final consumer of temperature-controlled perishable goods (Heap, 2006) and is a method used to ensure the preserved state of refrigerated perishable foodstuffs (Billiard, 2003). Hence, for the purpose of this study the products distributed and stored in this way will be referred to as cold chain food.

The potential for further growth and development of packaging in developing countries with their growing populations has not been reached (Rundh, 2005). It can thus be concluded that there is an opportunity for growth in the packaging industry in South Africa. South Africa is a developing country with a diverse population (Baumann, 2008) and, therefore, South African

consumers are seen to be different to consumers from the industrialised countries and this will be determined in this study.

Consequently instead of applying international research findings on the subject of consumer perceptions and purchase decisions of packaging, the South African consumer needs to be explored in his or her own right. Previous research in South Africa has focused on the influence of packaging on perceptions (Swart, 1993), consumers' perceptions of food labelling with regards to their purchasing behaviour (Klein, 2005) as well as the context of the choice of convenience food for working women (Kok and Botha, 2004). However, consumers' perceptions of packaging of cold chain food and their purchasing decisions as influenced by packaging of cold chain food have not been studied previously.

In a way consumers' shopping behaviour has changed significantly due to the economic relief in South-Africa as was evident during 1996 to 2006 and it impacted in various ways on consumers (ACNielsen, 2006). One clear influence on the Fast Moving Consumer Goods (FMCG) markets has been the increased prevalence of refrigerator ownership which has expanded from 48% to 68% in the mentioned period (ACNielsen, 2006). This increase in refrigerator ownership has given more consumers the ability to buy food products from the cold chain. Therefore, it can be assumed that the number of consumers buying cold chain food has increased. The above confirms Rundh's (2005) findings that there is the potential for further growth in the packaging industry due to consumers' new life styles, smaller households and consumers' search for convenience.

Women are more pressed for time these days as they are not only active in the formal labour market but are also responsible for other domestic tasks such as purchasing and preparation of food (Lake *et al.*, 2006). Silayoi and Speece (2004) found that women in most countries are still primarily responsible for shopping and decision-making of frequently purchased packaged food products. Consumers have less time to spend on food preparation as a result of multiple demands on their time, and thus consumers' demands for convenience are increasing and putting pressure on the food industry for improvement and variety of food processing and preservation (Zink, 1997). It has been suggested that in future packaging should support quick preparation for time-pressed consumers (Bardic, 2003). A study of food packaging and cold chain food as ways of providing in consumers' need for convenience is highly relevant to the current changing lifestyle situation of the South African consumer.

Silayoi and Speece (2004) stipulated that it is essential to gain an understanding of consumers' response to packaging. Consequently this understanding with regard to packaging within the competitive market could generate a guide to maximize package impact for the consumer (Silayoi and Speece, 2004). This study aimed to give a better understanding of the influence that the packaging of cold chain food has on the consumers' purchasing decisions. The first objective of the study was to explore consumers' perceptions regarding the packaging of cold chain foods. The second objective was to explore the influence that the packaging of cold chain foods has on a sample of South African consumers' decision to purchase the product. Although research regarding packaging and consumers' perceptions has been done previously through international studies, it has not been done sufficiently in a South African context, thereby increasing the need for this exploratory study.

## **Literature review**

### **Packaging, its functions and cold chain food**

According to Rundh (2005), packaging is an essential part of the product as the consumer is firstly exposed to it. Suitable packaging materials are used to protect and preserve food products (Prendergast and Pitt, 1996; Brody and Lord, 2000; Silayoi and Speece, 2004; Texiera and Badrie, 2005) during storage and transportation and to provide protection against contamination, potential losses, while also acting as a method of dispensing the product (Brody and Lord, 2000; Texeira and Badrie, 2005). Packaging must provide protection of the contents from shifting and breakage and easy disposal to offer an important marketing advantage to the product (Hogan, 2001). Therefore, packaging must at all times accommodate the functions of the contained food (Brody and Lord, 2000).

Packaging also has the function of displaying the product on the shelf to capture the attention of the consumer when choices have to be made between competing products (Rundh, 2005). Thus packaging communicates brand personality through structural and visual elements, including package materials, brand logo, colours, fonts, product descriptions and shapes (Underwood, 2003). It was mentioned by Silayoi and Speece (2004) that there is a challenge for researchers to integrate packaging into an effective purchasing model, by trying to understand packaging elements as important marketing communication tools. Consequently this shows the importance of understanding consumer's purchasing decisions as influenced by packaging of food which was determined in this study.

Apart from the preservation function of packaging (Prendergast and Pitt, 1996), cold storage by means of refrigeration and freezing of food is an additional method of preservation. Within the cold chain, refrigeration extends the shelf-life and maintains freshness of food products (Billiard, 2003). Despite the general use of refrigeration as a means of food preservation, especially on highly perishable foods such as meat, dairy and seafood products, as well as susceptible food such as fruit and vegetables (Billiard, 2003) no specific research on the packaging and the influence thereof on consumers is available. Through applying methods to preserve foods, microbiological safety issues, quality changes and the rate of spoilage of the food product is reduced and sensory qualities are improved for the consumer (Brody and Lord, 2000).

Compliance with the cold chain (cooling and/or freezing) is crucial to ensure optimal preservation of perishable foods and provide consumers with safe, wholesome food products (Billiard, 2003). Consequently, a study regarding the packaging of cold chain food is highly relevant since the South African consumer's use of refrigerated and frozen food has increased during the past few years. This assumption is made due to the increase in refrigerator ownership among South-Africans (ACNielsen, 2006)

### **Consumers' perceptions of packaging of food**

Packaging is a key food product attribute perceived by consumers (Silayoi and Speece, 2004). According to Sijtsema *et al.* (2002), consumers perceive products while they buy them, and the associated perception is based on sensory observations by the person as well as product characteristics. When consumers are processing stimuli, their sensory perceptions are stimulated in such a way that they focus on the possible outcomes and sensory experiences associated with the brand (Underwood, 2003).

Furthermore, product attributes are perceived by consumers and are critical factors in the food choice process (Kupiec and Revell, 2001). Underwood and Klein (2002) found evidence suggesting that consumers use packaging as an extrinsic signal to initiate intrinsic product attributes. Thus consumers use the total product packaging to determine and form an opinion of the quality of the product on the inside.

Consumer's perceptions form one of the most important factors that influence buying behaviour (Mostert and Du Plessis, 2007; Zeithaml, 1988). Furthermore, the way a consumer perceives a product is reality to that specific individual despite what the generally accepted idea might be

(Mostert and Du Plessis, 2007). People only perceive a small part of the stimuli to which they are exposed and the stimulus that is selected depends on consumers' previous experience as it affects their expectations and their motives (Schiffman and Kanuk, 2007).

An innovative packaging can change the product perception as experienced by consumers and consequently create a differential advantage as well as a new market position for a brand (Creusen and Schoormans; 2005 Rundh, 2005). Therefore, marketers must understand consumers' perceptions of their products (Hawkins *et al.*, 2007; Mostert and Du Plessis, 2007). When food products are not sold in their final (prepared) form, the consumer sometimes has to rely on the package to develop an impression of the final (prepared) product (Underwood and Ozanne, 1998). Thus if a packaging communicates high quality, consumers will transfer this quality perception to the product itself (Silayoi and Speece, 2004). For instance, consumers are more likely to imagine aspects of what a product looks like, tastes, feels and smells while they are viewing a product picture on the packaging (Underwood *et al.*, 2001).

It is important for marketers to recognize that the representation on the product package can affect the consumer's perception thereof (Evans *et al.*, 1996; Sijtsema *et al.*, 2002). The way consumers perceive packaging depends on communication elements of the packaging (Silayoi and Speece, 2004). Hence, it is important to remember that overall features of a package can make a product unique and original (Silayoi and Speece, 2004).

### **Packaging of food and consumers' purchasing decisions**

Decision-making has become increasingly complex for consumers due to commercial global integration in the market place (Lysonski *et al.*, 1996). There is a wealth of choices for the consumer to make a decision between all the competitors contending for the consumer's attention (Lysonski *et al.*, 1996). Thus the way a consumer sees competitive products will affect his or her purchasing decision (Ampuero and Vila, 2006). As a result packaging that stands out on the shelf (attractive packaging) will break through the clutter of competitive products and affect the consumers' purchasing decision (Silayoi and Speece, 2004; Texeira and Badrie, 2005; Ampuero and Vila, 2006).

There is an increase in purchasing decisions made inside the store environment (Underwood and Ozanne, 1998; Ampuero and Vila, 2006) due to some consumers being more involved in the product decision and more extensive use of product information (Silayoi and Speece, 2004).

Consumers want to make informed decisions regarding food quality and safety and want to make choices that maintain their way of living (Texeira and Badrie, 2005). Prendergast and Pitt (1996) acknowledged that packaging is one of the most influential factors that affect the purchasing decisions of the consumer in the store. Once a package has affected consumers' perceptions, this will guide their attitude or opinion about products and consequently determine their final purchasing decision (Ampuero and Vila, 2006).

Garber (1995) found that choice decisions are context dependent and criteria in the form of information supplied at the point-of-purchase such as text and visuals available on a package may be used by the consumer in order to make a purchase decision. It is estimated that 73% of purchase decisions are made at the point-of-purchase (Rettie and Brewer, 2000) and that packaging offers an effective way of conveying product attributes at the point-of-sale (Silayoi and Speece, 2004; Underwood and Ozanne, 1998). Hence packaging takes on an increasingly important role during decision making at the point-of-purchase, especially when compared to other communication instruments, due to its easy availability (Underwood and Klein, 2002).

Consequently it can be concluded that packaging fulfills the role of silent salesman of food products at the point-of-purchase and that purchasing decisions are to a great extent influenced by the packaging (Silayoi and Speece, 2004; Ampuero and Vila, 2006). For this reason it is important to understand consumers' purchasing decisions as influenced by the packaging of food and more specifically cold chain food for the purpose of this study.

Visual and informational elements of packaging influence purchasing decisions as these elements create an image for the consumer (Silayoi and Speece, 2004). The visual elements consist of graphics, colour, size and shape of packaging and the informational elements relates to information provided and technologies used in the package (Silayoi and Speece, 2004). Consumers' purchasing decisions are strongly influenced by appropriately delivered information on packaging (Silayoi and Speece, 2004; Texeira and Badrie, 2005) as well as brand name or popularity of a product and the quality and type of packaging (Texeira and Badrie, 2005). Thus it can be concluded that consumers' choices of food are strongly influenced by visual elements of the package (Garber, 1995; Silayoi and Speece, 2004; Texeira and Badrie 2005).

Multiple market factors and consumer trends point to a heightened role of product packaging in the marketing mix, and therefore, packaging strategy should be the prime brand strategy (Underwood, 2003). Therefore, this study explored the influence of packaging of cold chain

food on consumer's purchasing decisions. Furthermore, consumers' perceptions regarding packaging of cold chain food were explored in order to determine the influence on the purchasing decisions.

## **Methodology**

### **Research design**

A qualitative study was conducted to explore the influence of the packaging of cold chain food on consumers' perceptions and purchasing decisions. The qualitative interview is based upon conversation with researchers asking the participants questions and the participants giving the answers (Malhotra and Birks, 2007). This approach was appropriate as this research approach is directed at giving an in-depth and interpretive understanding of the collective world of consumers by learning about their experiences and perspectives (Snape and Spencer, 2003). This approach led to more in-depth information that could describe a phenomenon more than quantitative methods could (Hoepfl, 1997).

In addition the research had a phenomenological focus as it attempted to understand and interpret consumers' ideas, opinions and resulting behaviour (Levy, 1999). This method was chosen as it attempted to answer certain kinds of research questions about the consumers' subjective experiences (Robson, 2002). As mentioned consumer research regarding packaging of cold chain food is under explored in South Africa. The research was of an explorative nature, leading to the development of new concepts (Delpont and Fouché, 2002). Zikmund and Babin (2007) explained that exploratory research can lead to new ideas which may potentially bring new business opportunities. Hence new packaging ideas can be generated and applied that are in line with participants' preferences and expectations of packaging. Thus it was the intention to gain knowledge that is applicable in South Africa.

### **Sampling**

This study was conducted in Potchefstroom in the North-West Province of South Africa as it was convenient for the researcher due to the University being situated in Potchefstroom. In most countries women are still mainly responsible for household shopping and are the main decision makers for frequently purchased packaged food products (Silayoi and Speece, 2004). As a result, it was decided that only female participants older than 24 years be included in this study because the participants had to buy cold chain food on a monthly basis for themselves or

their family. Students were excluded from the study as they often do not have an income and do not buy food products for themselves on a regular basis.

In order to obtain this specific sample of consumers the snowball method was used (Strydom and Venter, 2002). Snowball sampling is a type of purposive sampling which is also the dominant strategy used in qualitative research (Hoepfl, 1997). Furthermore, purposive sampling is a type of non-probability sampling and was helpful in finding the consumers to be observed as they were selected on the basis of the researcher's judgement about which ones would be most representative (Babbie, 2007) of the inclusion criteria of the study. The inclusion criteria that was mentioned above was used to select participants that were unfamiliar with the research project and field. Snowballing commenced with the semi-structured interviews of a few unrelated participants within the study population from whom data were collected (Babbie, 2008). These participants were contacted by the researcher. Thereafter chosen participants enabled the researcher to locate the rest of the participants by referring a friend/colleague of the same population for semi-structured interviewing (Babbie, 2008; Ritchie *et al.*, 2003). These methods of sampling allowed the inclusion of participants adhering to the inclusion criteria.

### **Data collection**

Data collection was done using in-depth semi-structured interviews with open-ended questions. Interviewing is the predominant mode of data collection in qualitative research (Greeff, 2002; Hoepfl, 1997) as it is a way of acquiring detailed information about the topic being studied (Wilkinson and Birmingham; 2003). Semi-structured interviews were used by the researcher to gain detailed information on a one-to-one basis (Wilkinson and Birmingham 2003) of a consumer's beliefs, explanations or perceptions of the specific topic that was studied (Greeff, 2002).

In addition the open-ended nature of questions allowed for individual variation in opinions during the semi-structured interviews (Hoepfl, 1997). Therefore, this method was suitable for this study as it focused on reasons behind participants' purchasing decisions. A projective technique in combination with semi-structured interviewing was also used to gather participant's perceptions regarding the packaging of cold chain food. Participants were shown mock packages of cold chain food products and were asked to give their thoughts about the packaging to strengthen the responses to the other questions further. They were probed with questions regarding their expectations of the packaging. Projective techniques are used

frequently in market research to attempt to ascertain what participants' truly think of a product/topic (Will *et al.*, 1996). The projective technique was useful in gathering consumers' responses of the packaging by physically showing it to them and thereby gaining more accurate and truthful answers. The following packages were used with the projective technique: carton box packaging used for precooked meals, frozen meats, fish and pastries; plastic sachet used for milk and juices; plastic bottle used for milk and the foil paper packaging as used for margarine.

These specific packages were chosen because the researcher wanted to use a variety of packaging materials to gain a general cold chain packaging material data representation. Data collection continued until data saturation was reached which occurred after 25 semi-structured interviews. The same questions were asked to all the participants but they were probed to make sure that the objectives of the study were reached. The following questions were asked: *What do you think of the different types of packaging of cold chain food products?* (Objective 1) and, *How does the packaging of cold chain food products influence your decision to purchase a product?* (Objective 2). These discussions were followed by the projective technique through using the mock packagings, allowing the participants to discuss their perceptions regarding each packaging. Participants were shown a packaging and were asked what they thought about each packaging.

Semi-structured interviews were tape-recorded to allow accurate transcription of the data (Maykut and Morehouse, 1994). Participants gave permission to participate in semi-structured interviews and to allow the tape recording thereof (Strydom, 2002a) by signing an informed consent form. Each interview took approximately 30 minutes. Field notes were also taken during each semi-structured interview to help the researcher to take account of important things that happened during the interview (Strydom, 2002b). The interviews proceeded after an introduction and explanation of the purpose of the study was given to each participant. The interviews were held in the privacy of each individual's home to further increase the comfort for each individual and to make them feel relaxed and willing to be open and honest (Malhotra and Birks, 2007).

The pilot study that was completed before the main study commenced to allow the testing of the data collection methods and the researcher was able to make adjustments prior to the actual semi-structured interviews in order to enrich the quality of data (Strydom and Delport, 2002) and to re-define the research objectives (Zikmund and Babin, 2007). The pilot study was conducted

to guide the formulation of the most relevant questions in order to reach the research objectives. Furthermore, piloting of the questions beforehand helped to establish clarity of the questions (Wilkinson and Birmingham, 2003). After the pilot study was conducted, questions were adapted to in order to better fulfil the research objectives. This was done by leaving out, simplifying or broadening certain questions that did not yield relevant information in the pilot study.

### **Data analysis**

The tape recordings from semi-structured interviews together with the discussions from the projective technique were transcribed verbatim in the original language that the participant used. Transcripts gave records of every word that was said during the semi-structured interviews and were, therefore, reliable (Wilkinson and Birmingham, 2003) and assisted in the analysis of data (De Vos, 2002). Thereafter the statements of participants who responded in Afrikaans were translated into English to preserve the original meaning. These translations were checked by experienced researchers. The transcripts were coded, whereby the data were grouped into concepts and themes through a process of open-coding (Henning *et al.*, 2004). During coding, conceptual categories are formed by grouping words and phrases that are similar together (Hoepfl, 1997). Under each theme, different concepts and sub-concepts were formulated.

### **Ethical considerations**

Data collection was initiated by briefing participants about the objectives and potential value of the study. Participants were asked permission to be included into the study and to be tape recorded as recommended by Henning *et al.* (2004). This was done by requiring each participant to sign an informed consent form. They were also assured of their anonymity and that their responses would only be used for the purpose of the study. Consequently all participants answered questions voluntarily (Zikmund and Babin, 2007). As mentioned, participants were interviewed in their own homes, to decrease levels of discomfort and were allowed to withdraw from the study at any time, should they feel the need. Ethical approval for this study was obtained from the Ethics Committee of the North-West University (reference code 06k09).

## Trustworthiness

Trustworthiness of the study as described by Maykut and Morehouse (1994) was achieved by using various methods. The model of Lincoln and Guba (1985) was used to ensure trustworthiness (Table 1) together with the principles of trustworthiness described by Krefting (1991). In addition strategies described by Babbie and Mouton (2001) were also included. Table 1 provides a summary of the strategies applied to ensure trustworthiness of data.

Table 1: Summary of the strategies applied to ensure trustworthiness of data

Strategy	Criteria	Application
Credibility	Field experience	<ul style="list-style-type: none"> <li>• A pilot study was performed to explore the research setting.</li> <li>• Twenty-five semi-structured interviews were conducted combined with the projective technique.</li> <li>• Twenty-five female participants took part in the semi-structured interviews.</li> </ul>
	Reflexibility	<ul style="list-style-type: none"> <li>• Field notes were compared to audio recordings and transcribed data.</li> <li>• English transcribed data were compared with the Afrikaans audio recordings to ensure that the original meanings were preserved.</li> </ul>
	Triangulation	<ul style="list-style-type: none"> <li>• Twenty-five individual semi-structured interviews were used as data collection method.</li> <li>• Projective technique using mock packagings accompanied semi-structured interviewing.</li> <li>• Data collection was done by means of tape recordings and field notes.</li> <li>• Verbatim transcripts were quoted in the results in original words of participants.</li> <li>• Concepts and themes were identified and argued by the research team.</li> <li>• The findings of the study were compared to existing literature.</li> </ul>
	Peer debriefing/review	<ul style="list-style-type: none"> <li>• Raw data were analysed by co-researchers.</li> <li>• Discussions with other experienced researchers.</li> </ul>
	Data collection techniques	<ul style="list-style-type: none"> <li>• Pilot study with semi-structured interviews and a projective technique was done.</li> </ul>
Transferability	Selection of sample	<ul style="list-style-type: none"> <li>• Purposive sampling was used, recruiting only female participants adhering to the inclusion criteria.</li> </ul>
	In-depth description	<ul style="list-style-type: none"> <li>• Description of methodology and results accompanied by verbatim quotations.</li> </ul>
Dependability	Dependability audits	<ul style="list-style-type: none"> <li>• Detailed analysis of themes and concepts controlled by experienced researchers.</li> </ul>
	Dense description	<ul style="list-style-type: none"> <li>• Detailed description of methodology.</li> </ul>
	Triangulation	<ul style="list-style-type: none"> <li>• Twenty-five semi-structured interviews were verbatim transcribed and compared to field notes.</li> <li>• Open coding method of data analysis.</li> </ul>
	Peer examination	<ul style="list-style-type: none"> <li>• Frequent discussions with colleagues.</li> </ul>
	Question guide	<ul style="list-style-type: none"> <li>• Each participant was interviewed according to the same question guide and probed to ensure in-depth data.</li> </ul>
Conformability	Conformability audit	<ul style="list-style-type: none"> <li>• All records and transcripts were kept.</li> </ul>
	Reflexibility	<ul style="list-style-type: none"> <li>• Field notes were made and used for data analysis.</li> </ul>

## **Results and discussion**

The following section provides a discussion of the themes, concepts and sub-concepts that emerged from the data. Results are presented according to the objectives of the study.

### **Participants' perceptions and expectations of cold chain food packaging**

Participants' were asked to express their perceptions about different types of cold chain food packaging. However, most participants provided responses of insufficient depth and were probed to include their expectations. Thus the responses included participants' perceptions and expectations of the packaging of cold chain food which could provide valuable information to manufacturers of cold chain products. Their perceptions and expectations were described as packaging and non-packaging related product attributes of cold chain food, which were the main themes identified from the data.

#### ***Theme: Participants perceptions and expectations depicted in packaging related attributes***

Participants' perceptions and expectations were grouped into the following concepts: small packaging sizes, storage and handling convenience, recyclability of packaging, attractiveness of packaging, resealable packaging, packaging quality, hygienic product quality, informative and transparent packaging.

It was indicated by participants that the package sometimes contained too large quantities of food for them to handle ("I would prefer that they make smaller packages...") forcing them to buy more than they needed as a result of the limited variety of package sizes available. Previous research indicated that consumers from smaller households felt that larger sizes of packaging communicated wastage to them and especially working women with smaller families preferred smaller packages with appropriate product portions (Silayoi and Speece, 2004). Thus the availability of a variety of package sizes of products is important to consumers to fulfil their specific household needs.

Silayoi and Speece (2007) stated that an increasingly important function of packaging is to provide convenience of handling and storing of the food product. Changing lifestyles have created a demand for packages that offer easy, efficient handling (Rundh, 2005). The demand for easier storage was confirmed by participants in the present study ("Packages must not take up space in your freezer" and "The packages must be stored easily"). In addition participants

felt that certain forms of packaging are more user friendly, in other words are easier to handle, than others (“Some products handle easier in a square form than a round form”), while other forms of packaging are more versatile and can be used again afterwards (“It can be more reusable...; that you can recycle it afterwards. That is a gap in our country”).

Only a minority regarded recycling as important as recycling is only applied to a limited extent by consumers in South Africa. In South Africa domestic waste is rarely separated at home and few businesses encourage the return of empty containers and packaging. Thus when a packaging is emptied in South Africa, it will mostly be thrown into a waste bin or simply be discarded (Anon, 2008). The results, however, indicated that some participants’ feel that there is room for improvement when it comes to recycling of food packaging in South Africa. Consumer’s increasingly demand more environmentally friendly packaging with the emphasis on recyclable and reusable packaging (Rundh, 2005)

Resealability of packaging was prevalent as a priority in some participants’ statements. The participants felt that resealable packaging is more convenient since they want to store the product again once opened (“The way in which packages can close again is very important to me” and “They can package those frozen vegetables in a better way so that the bag can be closed again”). This confirms that packaging is an indispensable part of today’s modern lifestyle and the key trends leading growth in developed packaged food markets are convenience, functionality and indulgence (Ahmed *et al.*, 2005).

Attractiveness of the packaging was important to the interviewed participants. They preferred packages that are neat and clean (“The package must be neat and clean” and “If I can’t find one that is properly clean I won’t take it...”) with an appetizing appearance of the product on the package. However, they seemed to be angered by misleading visual presentations on packages (“... the product has a very pretty picture on it and then when you open it, it doesn’t look the same”). Underwood (2003) confirmed that when consumers’ are processing imagery their sensory perceptions are stimulated to such an extent that they focus on possible outcomes and sensory experiences associated with the brand. Thus the package should capture their attention (Pilditch, 1973), but it is important to convey truthful images of the product inside.

Obtaining the consumer’s attention is important to marketers because of the large amount of stimuli within a retail setting (Underwood *et al.*, 2001). Furthermore, participants in this study felt that the colour of packaging is important in creating a definite association between colour

and illustrations on packaging and consumers' expectations regarding the product inside the package. Underwood and Klein (2002) indicated that well executed pictures on packages create more enjoyable aesthetic experiences for the consumer and thus a positive impression of the product. Therefore, it can be said that manufacturers need to be aware of the effect of the illustrations and colours used on the packaging as they create an expectation of the product on the inside, hence the images and illustrations should be realistic.

Consumers' judgments of the quality of a product are influenced by product characteristics such as the packaging (Silayoi and Speece, 2004). In this study it was found that participants were intent on their need for acceptable packaging quality ("Packaging must be tight, undamaged and airtight" and "It must hold the product on the inside properly to prevent the contents from falling out") and indicated their disappointment with packages of inferior quality ("If you squeeze it you are afraid you'll force the juice out"). Thus it can be concluded that the South African participants in the present study expect the packaging of cold chain food to be firm, tight and not damaged. This could be due to the fact that cold chain food may easily be contaminated due to damage to the food products through freezer burn which may also lead to unattractive appearance and a loss in nutrients.

Plastic wrap as an additional means of packaging inside the main packaging was mentioned by the participants a number of times, indicating its importance to participants ("...with some products you get the product only in the carton box, I'd prefer it if the product was in a plastic bag inside the container"). These statements were substantiated by Texeira and Badrie (2005) who indicated that consumers believed that packaging could adversely affect the quality of a food product and that plastic was according to them the best packaging material. Some participants believed that certain kinds of packaging materials are an unhygienic means of packaging for the product. For instance carton boxes and paper packaging material ("I don't like boxes and paper because they look dirty and smell...") while plastic packaging was perceived as hygienic. It can be suggested that manufacturers should package cold chain food products with additional packaging such as plastic especially when the food product is just enclosed by a carton box. Plastic may be more expensive but this would assure participants that the product is safe and hygienic.

Accomplishment of the informative aspect of the food content was also important to participants ("... everything that the product contains must be said on the package: You want to know exactly what vegetables are in the package"). Furthermore, they placed a high value on truthful

ingredient lists and product information to confirm the content of the package. The participants felt that the expiry date is an important consideration when buying highly perishable cold chain food. In a study done by Texeira and Badrie (2005) 41% of participants were mostly influenced by information on the label when faced with a choice between food products. Information on packaging seems to be a very important tool in guiding consumers' cold chain purchasing decisions.

Closely related to the idea of informative packaging, some participants mentioned the idea of having transparent packaging material in order to see what the product inside the packaging of the cold chain food looks like ("I want to be able to see inside the packaging"). For similar reasons Texeira and Badrie (2005) found that 40% of their participants favoured transparent packaging material. Thus it can be concluded that packaging of certain cold chain foods can be made transparent as this may increase sales and also serve an informative function by displaying the content to the consumer.

***Theme: Participants perceptions and expectations depicted in non-packaging attributes***

A single concept namely price awareness emerged describing participants' thoughts and expectations depicted in non-packaging attributes. A number of participants indicated that trying to manage their monthly budget is more important to them than the packaging of cold chain food. ("For me it is about price because I have to make my budget at home"). Some participants are price sensitive and take the cheapest product ("What the package looks like doesn't bother me, but the product that's the cheapest is what I look for"). A number of participants perceive the product to be of better quality when it is more expensive ("...I look at price...I think the more expensive the product, the better the quality of the package"). Texeira and Badrie (2005) confirmed that consumers are often influenced to purchase a product through aspects of price and value for money. Price is an important aspect of a product and can influence consumer purchase (Lange *et al.*, 1999). Based on the above it can be concluded that some South African consumers in the present study were more influenced by the price of a cold chain food product than by the packaging. Hence manufacturers should remember to develop economical packaging for a consumer market whose primary concern is price and buying the best for the least amount.

## **Participants' perceptions of different types of packaging of cold chain food**

Participants were asked to articulate their perceptions using the projective technique during which participants were shown examples of packagings. However, some participants also addressed their preferences in packaging materials. Sijtsema et al. (2002) found that several factors such as attitude, habit, demographic variables, and preference may all contribute to the final perception consumers have regarding a particular food product and once these perceptions are formed, the perception will be converted into attitudes which will have an impact on consumers resulting purchasing decisions (Ampuero & Vila, 2006:110). This is an important finding which shows that consumers have certain preferences and expectations regarding packaging and that manufacturers should address these preferences which directly influence participants purchasing decisions. Table 2 summarizes participants' perceptions of specific types of packaging of cold chain food as well as cold chain food packaging in general.

Participant's perceptions also described the characteristics of the packaging and both positive and negative characteristics were identified. The table shows the characteristics of each type of packaging of cold chain food that participants view as either positive or negative. With regards to the carton, plastic bottle, plastic sachet and foil paper packaging specifically, resealability, transparency, quantity of packaging and price were recurring themes. Overall participants were mostly positive about the plastic bottle packaging while the plastic sachet and the carton box packaging were perceived more negatively. Manufacturers and new product developers should take note of these negative perceptions when considering plastic sachets and carton box packagings as packaging materials.

Participants disliked the wetness of the plastic sachet packaging, since too much of the product is wasted and it is difficult to handle. However, other participants preferred the sachet instead of the plastic bottle because it is the cheaper option. On the other hand some felt that the more expensive plastic bottle meant better quality, as participants often use price to indicate product quality (Lichtenstein *et al.*, 1993). They added that the plastic bottle had additional packaging qualities such as convenient handling, strong and sealable packaging, recyclable packaging and packaging quantity is convenient (Table 2), meaning that they want packaging to be available in sizes that suits their specific lifestyle which may be that smaller amounts don't get wasted. Nevertheless, a few felt that the size of packaging is too large and that they would prefer smaller packaged amounts of food.

Most of the participants felt that the carton box packaging does not have the ability to be properly stored and resealed again (Table 2), (“They can put the product on the inside in a piece of plastic, because the moment you open that box you can’t put it back in the freezer again” and “There are always a few left. You can put it in a smaller packaging but you must be able to guess what it is the next time”). Moreover, some participants felt that the packaging is weak when getting wet and soft in the freezer and consequently some are afraid of this effect on their health. The design of a product packaging should convey healthiness and safety rather than excitement (Silayoi and Speece, 2007).

Lastly, a large number of participants said that the carton box obscures the visibility of the product, as they want to be able to see inside the package (Table 2). Silayoi and Speece (2007) concluded that product expectations can be generated from cues such as packaging for instance and that perceptions of colour are associated with other quality attributes such as flavour and nutrition. Furthermore, a positive perception can be achieved by manipulating one or more variables such as clear packaging to allow viewing of food colour.

Some participants preferred the foil paper packaging (normally used for margarine) since they feel that it is convenient for baking because the packaging shows where the product can be proportioned into smaller amounts. However, some participants felt that the packaging is not convenient enough because they have to repack the product into another container as the foil paper packaging gets dirty. Furthermore, they disliked the lack of resealability and, therefore, unhygienic nature of the packaging. As a result this type of packaging should be improved with better resealability in order to elevate the hygienic perception of consumers. One of the main packaging attributes found to influence consumers’ choice of packaged food product is the technology image of the packaging (in other words the convenience and ease of handling) (Silayoi and Speece, 2007). Therefore, the importance of the packaging of cold chain food as a means of providing convenience to the consumer should not be overlooked by manufacturers.

Participants made product associations when it came to the packagings. Despite the fact that all the packaging the participants were shown were empty and did not have any labelling, most consumers knew intuitively what product came in each packaging as they spoke about the packaging they were shown.

**Table 2: Participants' perceptions of different types of packaging of cold chain food**

Characteristics of packaging	Packaging of cold chain food in general	Different types of packaging of cold chain food			
		Carton box	Plastic sachet	Plastic bottle	Foil paper
<b>Negative characteristics:</b>					
Lack of resealability	√	√	√		√
Inconvenient packaging	√		√	√	
Lack of transparency	√	√		√	
Inadequate storage	√	√	√		
Wasting of product			√		
Unhygienic and weak packaging	√	√	√		√
Too large quantities	√			√	
Expensive packaging				√	
<b>Positive characteristics:</b>					
Resealability	√			√	
Hygienic and strong packaging	√			√	
Convenient handling	√			√	
Easy storage	√			√	
Cheap packaging			√		
Recyclability of packaging	√			√	

√ indicates the presence of the characteristic with the type of packaging.

When showed the plastic bottle packaging it was mentioned by some participants that they buy milk in that form of packaging as with the foil paper packaging that had a direct connotation with margarine. The plastic sachet was also associated with milk and the same with the carton box packaging which was mostly associated with raw fish. These findings are very important in indicating that manufacturers need to realise that consumers' perceptions about products also form product associations with packagings and that some products might be unfamiliar to

consumers when found in a specific type of packaging which could lead to possible rejection of the product.

### **The influence of packaging of cold chain food on participants decisions to purchase the product**

Participants were asked to discuss the influence of different types of cold chain packaging on their decision to purchase a product. They conveyed which criteria they had for packaging material when making purchasing decisions. These criteria of packaging were divided into two themes, namely: participants who are not influenced by the packaging and secondly, participants' who are influenced by the packaging to purchase.

#### ***Theme: Participants who are not influenced by packaging to purchase***

A number of participants were not influenced by the packaging of cold chain food. These participants felt that criteria other than packaging influenced their purchase decision of cold chain food to a greater extent. These criteria were divided into two concepts, namely: product experience and price sensitivity.

Some participants indicated that previous experience of or exposure to a product influenced their purchasing decisions to a greater extent than the packaging of cold chain food. They also indicated that familiar products on promotion are bought without hesitation ("Packaging doesn't influence me that much. I know a few good products and if they are on special I am inclined to take them rather than to look at the packaging"). Repeat purchase decisions concerning low involvement products are related to habitual behaviour with such decisions being made out of habit (Lin and Chang, 2003). Hence these participants are habitual purchasers due to their previous experience with the product.

In addition some participants indicated that they believe in the products they have known and trusted over a period of time ("I have certain brands which I use, so I buy according to experience"). Consequently past experience of a product influences the choice outcome in a purchase situation (Du Plessis and Rousseau, 2005). Therefore, it can be said that these participants are loyal to a certain brand they have used and trusted over a few years. According to Fazio and Zanna (as quoted by Underwood, 2003), lived experience is superior to mediated experience in terms of attitude formation and predictability of behaviour towards products. Brand awareness is an important choice tactic for consumers when facing a familiar or repeat

choice task (Macdonald and Sharp, 2000). Furthermore, Laroche *et al.* (1996) found that familiarity had an indirect effect on loyalty interceded by consumer confidence towards a brand.

Participants' have certain expectations about the products they buy and if their expectations are met it often happens that consumers stay loyal to a product (Blackwell *et al.*, 2006). This loyalty to a product or brand seems to have the strongest influence on their purchase decision of cold chain food since the majority of the participants indicated brand loyalty to be important in their decision. Price sensitivity was accentuated again by participants to influence their decisions of cold chain foods greatly ("The packaging doesn't influence me but the price does"). Some always look for and purchase the cheapest product without considering the type of packaging as they feel that packaging could to a certain extent contribute to the expenses of a product. Therefore, they look at the packaging to see if it appears to be expensive. Texiera and Badrie (2005) confirmed that price or value for money was the factor most influencing on consumers' purchases.

Consumers notice intrinsic (colour) and extrinsic signals (price) just before the purchasing decision and these signals influence the choice process (Sijtsema *et al.*, 2002). It is reasonable to argue that some participants in the study were mostly influenced by their budgets when buying cold chain foods. These participants do not want to buy inferior products but would sacrifice convenience or attractive packaging for their need to buy cheaper packaged food products. This finding would especially be true in the current economic times characterised by high food prices. It can thus be suggested that packaging should not necessarily be attractive to this group of participants but has to comply with participant's needs and expectations thereof.

### ***Theme: Participants who are influenced by packaging to purchase***

Some participants felt that packaging influences their decisions to purchase cold chain food. The criteria influencing these participants were divided into the following concepts: hygienic product qualities, functional product qualities, attractiveness of packaging, informative packaging, expensive packaging and new products.

The following concepts also emerged in previous questions regarding participants' perceptions of cold chain food: hygienic product qualities, visual attractiveness and informative packaging. The fact that these concepts re-emerged with different questions firstly stresses the importance thereof to the participants. Secondly, it indicates that these aspects they perceived to be important regarding packaging of cold chain will ultimately determine their decisions to purchase

the product. Thus manufacturers of cold chain products should take note of consumer perceptions of packaging of cold chain food as it may influence their purchasing decision and ultimately the sales of these products.

Participants felt that the packaging must be compliant with basic hygiene to prevent contamination of the product. Additionally it was accentuated what a prominent influence attractive packaging has on participants' purchasing decisions. A majority of participants mentioned that neat and pretty packaging is important in their purchasing decision and attracts them. In addition some participants felt that the store brand ("no-name") packages are unattractive and that colour and pictures are important. Elements such as pictures and colour in product packaging provide a cue to the quality of the product and often influences brand beliefs and product choice (Underwood, 2003). Some participants mentioned that information on the packaging influences their purchase decision the most while others are only influenced by the expiry date on the packaging. Personality of the brand is being communicated through multiple structural and visual elements on the package (Underwood, 2003). This implies that elements such as the colours, packaging materials, shapes and other elements of the packaging provide brand associations.

Participants' mentioned expensive packaging and explained that a package that is more expensive influenced their purchase decision the most because they perceive it as a better product. To strengthen this statement further Silayo and Speece (2004) found that when the packaging communicates high quality it reflects the high quality of the product, and that the opposite is true for low quality packaging.

Participants pointed out a few functional product qualities important to them whilst making purchasing decisions. Firstly, the packaging has to be resealable once opened and ensure that the product stays fresh. The aspects of storage and handling convenience were also addressed once again. Consequently it can be said that convenience or functionality of packaging has a strong influence on certain participants' purchasing decisions. Packaging of cold chain food, therefore, needs to communicate convenience of use in order for participants to be persuaded to purchase the product. Finally, it was found that packaging plays a role in the participants' purchasing decisions when they see new products that they are unfamiliar with ("Packaging especially influences my decisions when it comes to new products that I don't know"). Thus it can be concluded that some participants are influenced into purchasing cold chain food based on certain attributes of the packaging.

## Conclusion

The first objective of this study was to explore participants' perceptions regarding food packaging. When participants were asked about their perceptions some mentioned packaging related attributes while others mentioned non-packaging related attributes. Participants want packaging attributes such as a variety of sizes, easy storage, reusability, recyclability and resealability. It is well known that attractiveness of a packaging influences consumers' perceptions but it was interesting to find that participants look for aspects such as neatness, being appetising and truthful images on packaging and that some have been angered when images on packages had been untruthful or misleading. Colourful packaging and illustrations contribute to expectations of what the product on the inside should be like for the consumer. Hence it is important that the correct message is communicated by the packaging and its illustrations and colours.

Participants had certain needs regarding packaging that they expect packaging to fulfil. These are for firm and undamaged packaging and they suggested that plastic as additional means of packaging should be used to secure the cold chain food product on the inside. Furthermore, transparency of packaging was a preference of participants especially when frozen vegetables and precooked meals are concerned. Additionally it was noteworthy to find that some participants only consider the price of cold chain food without having too many preferences regarding the packaging and that their product or packaging preferences are guided by a strict budget.

Participants were also shown physical examples of cold chain packaging materials. In response to these packagings they were questioned about their perceptions thereof. The plastic sachet being used for packaging seemed to convey a perception of wasting, but on the other hand appeals to consumers who look for cheaper products. The more expensive bottle had connotations of a "better quality product" for some. Convenience of use recurred showing participants need for convenience with packaging of cold chain foods. The carton box was not perceived positively at all as it can in most cases not be resealed and stored again. Furthermore, transparency was also a preference participants had for carton box packages. Foil was considered convenient for using when baking, but was considered a poor packaging where resealability or storagability was concerned. These participants' preferences regarding the packaging of cold chain food should be considered by manufacturers when selecting product packaging to be able to satisfy consumer needs thereby increasing sales.

The second research objective was to explore the influence of the packaging of cold chain food on participants purchasing decisions. Participants were asked whether packaging of cold chain food influences their decision to purchase. It was indicated that some participants are not influenced by the packaging in buying the cold chain products. Instead they are influenced by aspects such as the price of the product and having to buy the cheapest option to save money. Others used their previous experience with a brand to guide their decision to purchase which showed that these participants are more brand loyal and mostly habitual purchasers. On the other hand some participants felt that they are influenced by a certain aspect of the packaging. Visual attractiveness and informative packaging primarily influences some while others refer to the packaging to make their decision to purchase a new product on the shelf. Several participants' indicated that a packaging that looked more expensive was of better quality and this influenced them in buying the more expensive packaging. However participants were mostly influenced to purchase by functional product qualities such as convenience, resealability and storability.

Thus this study established that packaging of cold chain food has an influence on this group of South African consumers' perceptions' of the products and that these perceptions influence consumers purchasing decisions. These results cannot be generalised to a wider South African population and are only applicable to the participants used in this study due to the qualitative nature and small sample size used in this study. Hence, it can be recommended that this study be used as a basis for a quantitative study of this nature that can be conducted on a larger scale wherein more participants should be included. The results would give a better understanding of why consumers make certain purchasing decisions and the influence that packaging of cold chain food has on these decisions. Furthermore, this would yield more comprehensive results for manufacturers and product developers to develop packaging of cold chain food that comply with consumers' expectations and needs thereof. The value of these findings lies in the fact that this type of research could help establish packaging that fulfils consumers' requirements as well as their needs. It is important to note that packaging contributes to price of products and consumers, therefore, pay extra for the packaging. By fulfilling their needs regarding packaging, they would also receive more value for money.

## References

ACNielsen. (2006), "Economic climate boosts FMCG spend", Nielsen's Press Office on Bizcommunity, available at:

<http://www.bizcommunity.com/PressOffice/PressRelease.aspx?i=358&ai=10907> (accessed 09 April 2008).

Ahmed, A., Ahmed, N. and Salman, A. (2005), "Critical issues in packaged food business", *British Food Journal*, Vol. 107 No. 10, pp. 760-780.

Ampuero, O. and Vila, N. (2006), "Consumer perceptions of product packaging", *Journal of Consumer Marketing*, Vol. 23 No. 2, pp. 102-114.

Anon. (2008), "PET Recycling in South Africa", available at: <http://www.petco.co.za/index.cfm?ActionID=39&iDivStyle=3> (accessed 08 May 2008).

Babbie, E. (2008), *The Basics of Social Research*, Thomson, Belmont.

Babbie, E. (2007), *The Practice of Social Research*, Thomson-Wadsworth, Belmont.

Babbie, E. and Mouton, J. (2001), *The Practice of Social Research*, South African Edition, Oxford Southern Africa, Cape Town.

Bardic, A. (2003), "Packaging trends: packaging by design", *The National Provisioner*, pp. 70-76.

Baumann, T. (2008), "South-Africa as a developing country: implications for socio-economic policy in the second decade", available at: <http://www.brccs.co.za/South%20Africa%20as%20a%20Developing%20Country.doc>. (accessed 22 April 2008).

Billiard, F. (2003), "New developments in the cold chain: Specific issues in warm countries", *Equilibrium*, pp. 10-14, available at: <http://www.iifir.org/en/doc/1049.pdf> (accessed 08 Apr 2008).

Blackwell, R.D., Miniard, P.W. and Engel, J.F. (2006), *Consumer Behavior*, Thomson, Mason, OH.

Brody, A.L. and Lord, J.B. (2000), *Developing New Food Products for a Changing Marketplace*, CRC, Boca Raton, Fla.

- Creusen, M.E.H. and Schoormans, J.P.L. (2005), "The different roles of product appearance in consumer choice", *Journal of Product Innovation Management*, Vol. 22 , pp. 63-81.
- Delport, C.S.L. and Fouché, C.B. (2002), "Qualitative research report", in De Vos, A.S. (Ed.), *Research at Grass Roots*, Van Schaik, Pretoria, pp. 356-359.
- De Vos, A.S. (2002), "Qualitative data analysis and interpretation", in De Vos, A.S. (Ed.), *Research at Grass Roots*, Van Schaik, Pretoria, pp. 339-355.
- Du Plessis, P.J. and Rousseau, G.G. (2005), *Buyer Behaviour: A Multi-Cultural Approach to Consumer Decision- Making in South Africa*, Oxford, Cape Town.
- Evans, M.J., Moutinho, L. and Van Raaij, W.F. (1996), *Applied Consumer Behaviour*, Addison-Wesley, Harlow.
- Garber, L.L. (1995), "The package appearance in choice", *Advances in Consumer Research*, Vol. 22, pp. 653-660.
- Greeff, M. (2002), "Information Collection: Interviewing", in De Vos, A.S. (Ed.), *Research at Grass Roots*, Van Schaik, Pretoria, pp. 291-320.
- Hawkins, D.I., Mothersbaugh, D.L. and Best, R.J. (2007), *Consumer Behavior*, McGraw-Hill Irwin, New York, NY, pp. 790.
- Heap, R.D. (2006), "Cold chain performance issues now and in the future", available at: <http://www.iifiir.org/en/doc/1077.pdf> (accessed 08 May 2008).
- Henning, E., van Rensburg, W. and Smit, B. (2004), *Finding Your Way in Qualitative Research*, Van Schaik, Pretoria.
- Hoepfl, M.C. (1997), "Choosing qualitative research: a primer for technology education researchers". *Journal of Technology Education*, Vol. 9 No. 1, pp. 47-63.
- Hogan, P.B. (2001), "Packaging: fast way to improve customer satisfaction and reduce cost of fulfillment", *Material Handling Management*, Vol. 56 No. 11, pp. 59-60.

Klein, R. (2005), "A South African study of consumers' perceptions of food labels and its relevance to their purchasing behaviour", (Dissertation- M. Consumer Sciences), North-West University, Potchefstroom, South Africa.

Kok, M. and Botha, P. (2004), "Die konteks vir die keuse van geriefsvoedsel van bepaalde huisvroue", *Tydskrif vir Gesinsekologie en Verbruikerswetenskappe*, Vol. 32, pp. 70-82.

Krefting, L. (1991), "Rigor in qualitative research: the assessment of trustworthiness", *International Journal of Occupational Therapy*, Vol. 45 No. 3, pp. 214-222.

Kupiec, S.R. and Revell, B. (2001), "Measuring consumer quality judgements", *British Food Journal*, Vol. 103 No. 1, pp.7-22.

Lake, A.A., Hyland, R.M., Mathers, J.C., Rugg-Gunn, A.J., Wood, C.E. and Adamson, A.J. (2006), "Food shopping and preparation among the 30-somethings: whose job is it?", *British Food Journal*, Vol. 108 No. 6, pp.475-486.

Lange, C., Rousseau, F. and Issanchou, S. (1999), "Expectation, liking and purchase behaviour under economical constraint", *Food Quality and Preference*, Vol. 10, pp. 31-39.

Laroche, M., Kim, C. and Zhou, L. (1996), "Brand familiarity and confidence as determinants of purchase intention: an emperical test in a multiple brand context", *Journal of Business Research*, Vol. 37 No. 2, pp. 115-120.

Levy, S. (1999), *Brands, Consumers, Symbols and Research*, Sage Publications, Thousand Oaks, Calif.

Lichtenstein, D.R., Ridgway, N.M. and Netemeyer, R.G. (1993), "Price perceptions and consumer shopping behaviour: a field study", *Journal of Marketing Research*, Vol. 30 No. 2, pp. 234-45.

Lin, M.Y. and Chang, L.H. (2003), "Determinants of habitual behavior for national and leading brands in China", *Journal of Product and Brand Management*, Vol. 12 No. 2, pp. 94-107.

- Lincoln, Y.S. and Guba, E.G. (1985), *Naturalistic Inquiry*, Sage Publications, Newbury Park, Calif.
- Lysonski, S., Durvasula, S. and Zotos, Y. (1996), "Consumer decision-making styles: a multi-country investigation", *European Journal of Marketing*, Vol. 30 No. 12, pp.10-21.
- Macdonald, E.K. and Sharp, B.M. (2000), "Brand awareness effects on consumer decision making for a common repeat purchase product: a replication", *Journal of Business Research*, Vol. 48, pp. 5-15.
- Malhotra, N.K. and Birks, D.F. (2007), *Marketing Research*, Prentice Hall, Harlow, Essex.
- Maykut, P. and Morehouse, R. (1994), *Beginning Qualitative Research: A Philosophic and Practical Guide*, The Falmer Press, London.
- Mostert, P.G. and Du Plessis, P.J. (2007), *Introduction to Marketing: A South African Perspective*, Mustard House Marketing, Pretoria.
- Pilditch, J. (1973), *The Silent Salesman*, Business Books, London.
- Prendergast, G. and Pitt, L. (1996), "Packaging, marketing, logistics and the environment: are there trade-offs", *International Journal of Physical Distribution and Logistics Management*, Vol. 26 No. 6, pp. 1-14.
- Rettie, R. and Brewer, C. (2000), "The verbal and visual components of package design", *Journal of Product and Brand Management*, Vol. 9 No. 1, pp. 56-70.
- Ritchie, J., Lewis, J. and Elam, G. (2003), "Designing and selecting samples", in Ritchie, J. and Lewis, J. (Ed.), *Qualitative Research Practice*, Sage, London, pp. 77-108.
- Robson, C. (2002), *Real World Research: A resource For Social Scientists and Practitioner-researchers*, Blackwell, Malden, Mass.
- Rundh, B. (2005), "The multi-faceted dimension of packaging", *British Food Journal*, Vol. 107 No. 9, pp. 670-684.

- Schiffman, L.G. and Kanuk, L.L. (2007), *Consumer Behavior*, Prentice-Hall, Upper Saddle River, NJ.
- Sijtsema, S., Linnemann, A., Van Gaasbeek, T., Dagevos, H. and Jongen, W. (2002), "Variables influencing food perception reviewed for consumer-oriented product development", *Critical Reviews in Food Science and Nutrition*, Vol. 42 No. 6, pp. 565-581.
- Silayoi, P. and Speece, M. (2004), "Packaging and purchase decisions", *British Food Journal*, Vol. 106 No. 8, pp. 607-628.
- Silayoi, P. and Speece, M. (2007), "The importance of packaging attributes: a conjoint analysis approach", *European Journal of Marketing*, Vol. 41 No. 11/12, pp. 1495-1517.
- Snape, D. and Spencer, L. (2003), "The foundations of qualitative research", in Ritchie, J. and Lewis, J. (Ed.), *Qualitative Research Practice*, Sage, London, pp. 2-23.
- Strydom, H. (2002a), "Ethical Aspects of Research in the Social Sciences and Human Service Professions", in De Vos, A.S. (Ed.), *Research at Grass Roots*, Van Schaik, Pretoria, pp. 62-76.
- Strydom, H. (2002b), "Information collection: participant observation", in De Vos, A.S. (Ed.), *Research at Grass Roots*, Van Schaik, Pretoria, pp. 278-290.
- Strydom, H. and Delport, C.S.L. (2002), "Sampling and pilot study in qualitative research", in De Vos, A.S. (Ed.), *Research at Grass Roots*, Van Schaik, Pretoria, pp. 333-338.
- Strydom, H. and Venter, L. (2002), "Sampling and sampling methods", in De Vos, A.S. (Ed.), *Research at Grass Roots*, Van Schaik, Pretoria, pp. 197-209.
- Swart, D.J. (1993), "Die invloed van verpakking op persepsies", Universiteit van Pretoria, Pretoria, South Africa (Dissertation-M Comm).
- Texeira, A.P. and Badrie, N. (2005), "Consumers' perception of food packaging in Trinidad, West Indies and its related impact on food choices", *Journal of Consumer Studies*, Vol. 29 No. 6, pp. 508-514.

Underwood, R.L. (2003), "The communicative power of product packaging: creating brand identity via lived and mediated experience", *Journal of Marketing Theory and Practice*, Vol. 11 No. 4, pp. 62-76.

Underwood, R.L., Klein, N.M. and Burke, R.R. (2001), "Packaging communication: attentional effects of product imagery", *Journal of Product and Brand Management*, Vol. 10 No. 7, pp. 403-422.

Underwood, R.L. and Klein, N.M. (2002), "Packaging as brand communication: effects of product pictures on consumer responses to the package and brand", *Journal of Marketing Theory and Practice*, Vol. 10 No. 4, pp. 58-68.

Underwood, R.L. and Ozanne, J.L. (1998), "Is your package an effective communicator? A normative framework for increasing the communicative competence of packaging", *Journal of Marketing Communications*, Vol. 4 No. 4, pp. 207-220.

Wilkinson, D. and Birmingham, P. (2003), *Using Research Instruments*, Routledge Falmer, London.

Will, V., Eadie, D. and Macaskill, S. (1996), "Projective and enabling techniques explored", *Marketing Intelligence and Planning*, Vol. 14 No 6, pp.38-43.

Zeithaml, V.A. (1988), "Consumer perceptions of price, quality and value: a means-end model and synthesis of evidence", *Journal of Marketing*, Vol. 52, pp. 2-22.

Zikmund, W.G. and Babin, B.J. (2007), *Exploring Marketing Research*, Thomson, Mason, Ohio.

Zink, D.L. (1997), "The impact of consumer demands and trends on food processing", *Emerging Infectious Diseases*, Vol. 3 No. 4, pp. 1-3.

## CHAPTER 4

### CONCLUDING DISCUSSION

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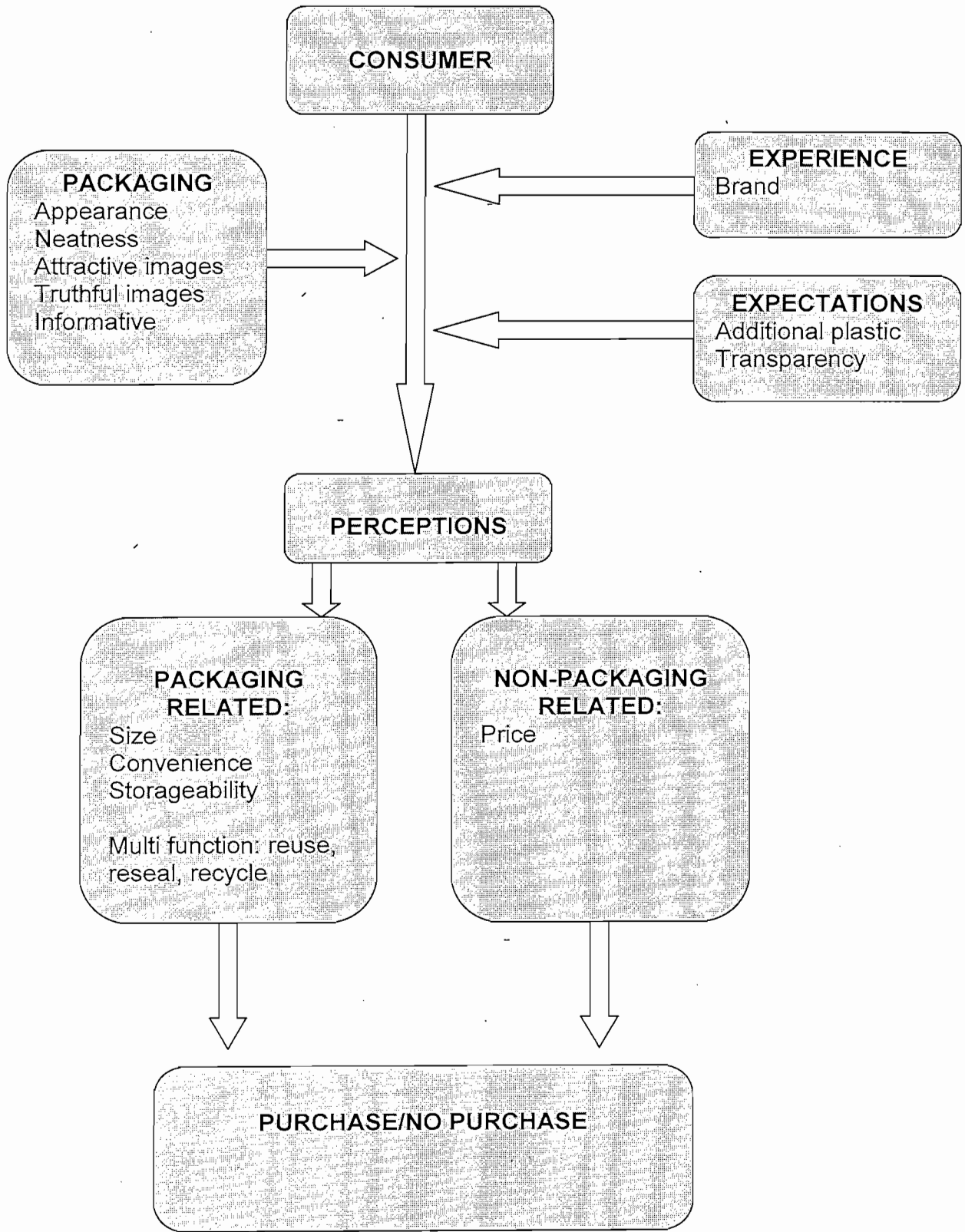
#### 4.1 Introduction

This chapter provides a conclusion of the results found in the study. Furthermore, details about the application of the study are given as well as experiences regarding the research procedure of the study concerning the way data were gathered and analysed. Additionally, limitations and recommendations for further studies are presented.

#### 4.2 Conclusion

This study established participants' perceptions of the packaging of cold chain food and found that it influenced participants' purchasing decisions. The first objective was to determine participants' perceptions of the packaging of cold chain food. Participants gave their perceptions and expectations of packaging of cold chain food even though their expectations did not form part of the original objectives. It was found that some participants' perceptions of the packaging of cold chain food was based on packaging related attributes while others were based on non packaging related attributes. Figure 2.1 provides a visual representation indicating the role of perception in the purchasing decision. Participants want packaging attributes such as variety of package sizes to meet individual needs, convenience, easy storageability and multi functionality such as the ability to reuse, reseal and recycle.

It was found again as with previous research that attractiveness of packaging influences participants' perceptions but it was interesting to find that participants look for aspects such as general appearance, neatness, attractive and truthful images and illustrations on packaging. These contribute to expectations of the actual product inside the packaging. Untruthful or misleading claims or images lead to anger that may result in negative future perceptions. Hence it is important that the correct message is being communicated by the packaging and its illustrations and colours.



## Figure 2.1 Model of the influence of perception in the consumers' purchasing decisions

Consumers have certain needs for intact packaging and it was suggested that additional plastic material should be used to secure the product on the inside. Transparency of packaging seemed to be preferred especially when frozen vegetables and precooked meals are concerned. Additionally it was indicated that some participants use price as the main attribute mainly because a tight budget guides the product or packaging preferences.

The second objective was to determine whether packaging of cold chain food has an influence on participant's decision to purchase. Additionally participants were asked what their perceptions were with regards to individual specific packages that were shown to them. Aspects that emerged in the previous questions re-emerged, thereby further strengthening certain statements previously made by participants. This was done by showing participants physical examples of cold chain packaging materials. When these packages were shown to them participants were asked about their perceptions of these packages. Some participants again mentioned their expectations and thus they were further probed on these.

The plastic sachet often used for packaging liquids appeals to participants with low budgets. Compared to this was the more expensive bottle which had the connotation of "better quality product" for some. Convenience of use recurred showing participants' need for convenience. The carton box was not well accepted. Negative responses included lack of transparency and that it is not resealable. The same response was given for foil although it was favourable for baking. Once again price was a higher priority when it was determined what effect package material had on the purchase decision

Some participants used their previous experience with a brand as influence on their decision to purchase which showed that these participants are more brand loyal and mostly habitual purchasers. Once again visual attractiveness and informative packaging primarily influence some participants decision to purchase. Several participants indicated that they perceive better product quality if the packaging had a more expensive look and this influenced them to buy products in more expensive packaging. Lastly, functional product qualities such as convenience, resealability and storagability also influenced participants' purchase decision.

Hence, it can be recommended that the results of this study be used as a basis and that a study of this nature can be conducted on a larger scale wherein more participants would be included.

The results would give a better understanding of consumers purchasing decisions as influenced by packaging of cold chain food in South Africa. Furthermore, this would obtain more comprehensive results for manufacturers, product developers and retailers to develop packaging for cold chain food that comply with consumers' expectations and needs thereof.

### **4.3 Relevance of this study to consumer science and industry**

This study focused on participants' perceptions and purchasing decisions concerning packaging of cold chain food. Participants involved in this study represent actual consumers. The study shows that the consumer can make a valuable input in the process of developing ideas for the manufacturing of packaging. Food manufacturers, scientists and product developers should involve the consumer to a larger extent during the process of development by gaining the perceptions and expectations of the consumers regarding the product envisaged. By understanding the influence that packaging of cold chain food has on consumers purchasing decisions, product developers and manufacturers will be able to develop or improve packaging of cold chain food in order to satisfy this group of consumers' needs of packaging.

The packaging of cold chain food is important in protecting and promoting the food product on the inside. Therefore, manufacturers and retailers should realise the potential of packaging in influencing consumer's perceptions and consequent purchasing decisions. Manufacturers, scientists and product developers should determine what consumers' perceptions, expectations and possible grievances are regarding packaging of cold chain food in order to improve packaging of products that are unsatisfactory to the consumer. The nature of this research project is limited as the present study is exploratory and thus the results cannot be generalised to a wider population and are only applicable to the specific participants under study. However, retailers and manufacturers can perform a similar study in their own outlets or their own product range to yield results applicable to their own consumers. Furthermore, data from the present study can be employed in a quantitative survey that can be applied to broader South African consumer market. The value of this for the consumer is that this type of research could help establish packaging that fulfils consumers' requirements thereof as well as their needs. Because packaging contributes to price the consumer will be willing to pay if he or she receives better value for their money.

## **4.4 Comments on the research procedure**

### **4.4.1 Semi-structured interviews**

The study made use of semi-structured interviews and an additional method was used to acquire triangulation, namely a projective technique using physical product packagings. This method suited the study as in depth information about the perceptions of participants was gathered. The questions were only used as a guide and to probe the participants to answer all the objectives of this study. The interviews were semi-structured thus preventing the interviews from generating unnecessary data which sometimes is the case with an unstructured interview.

The interviews were done individually in the participants' homes to allow them to feel comfortable and relaxed. This was helpful in that the participants did not feel rushed and had time to think about the questions. The snowball sampling method that was used helped to target a variety of participants but all of whom had to do the shopping for food products on a regular basis for themselves or their families. Snowballing is useful in that each participant guides the researcher to the next participant thereby assuring that the researcher does not recruit participants themselves (Babbie, 2007; Babbie, 2008).

### **4.4.2 Data analysis**

Data analysis was done by the researcher under supervision of two experienced researchers who acted as study leaders. After each interview transcribing of the data was done to assure that the interview was fresh in the researchers' mind. The study leaders helped to structure the research throughout the process to make sure that the study was conducted objectively and to ensure trustworthiness of the study. Coding helped to analyse the data into meaningful concepts and themes that could be compared to related literature.

## **4.5 Limitations and Recommendations**

This study was done in the North West Province, Potchefstroom. Only female participants older than 24 and who did the shopping of food for themselves or their families were included, while students were excluded. Data saturation was reached after only 25 interviews. Thus results of this study do not give an indication for the general behaviour of South African consumers. However meaningful information was identified which can be applied in research of a larger scale reinforcing data collection with quantitative methods. Thus this study could be applied to

more females and to male consumers in a larger scale in different provinces to ensure that the research can be seen as a general view of South African consumers.

Participants' purchasing decisions as influenced by packaging of cold chain food were studied. The research only focused on participants' perceptions of packaging of cold chain food and the influence that the packaging may have on their decisions to purchase. A study focusing more on the decision-making process could be done to gain a more in-depth understanding of the consumers' purchasing decision as influenced by packaging of cold chain food. Such information could help to understand the South African consumer better.

## Appendix A

Data reflecting a sample of participants' perceptions of the packaging of cold chain food

**Table A 1: Theme: Participants perceptions and expectations depicted in packaging attributes**

Concept	Sub-concept	Participants' statements
Small packaged sizes	<p>In need of smaller packaged amounts</p> <p>Forced to freeze leftovers</p>	<p><i>I would prefer that they make smaller packages for single people like us.</i></p> <p><i>Some packaging has too big amounts for a small consumer.</i></p> <p><i>You just use half of the packet and then what do you do with the other half?</i></p> <p><i>You are forced to buy more than you really need.</i></p> <p><i>You are not going to eat everything at the same time and I can't go and put it in the freezer because it will pack together and then you can't take them apart.</i></p>
Handling convenience	<p>Form important for handling</p> <p>Square containers reusable</p> <p>Economic spacing</p> <p>Uses less space</p>	<p><i>Form is important for the handling thereof.</i></p> <p><i>Form is important to me, because some products handle easier in a square form than a round form. ...It must handle easily.</i></p> <p><i>Square containers one can use again if you want to freeze soup.</i></p> <p><i>That margarine containers you can use again, it is good because you can freeze stuff in it.</i></p> <p><i>The square containers one can easily use again.</i></p> <p><i>It takes up less space in your freezer, because you get more stacked up in your freezer.</i></p>

Concept	Sub-concept	Participants' statements
Storage convenience	<p>Easy storage</p> <p>Inability to be stored</p>	<p><i>The packages must be stored easily.</i></p> <p><i>Packages must not take up space in your freezer.</i></p> <p><i>They can package those frozen vegetables in a better way so that the bag can close again.</i></p> <p><i>The way in which packages can close again is very important to me and it isn't sufficient, if you have opened a box once you cannot close it again.</i></p> <p><i>It must be like a lunch box type of thing, it must be able to be sealed again.</i></p> <p><i>It is something about polony that frustrates me if you have opened it to store it again.</i></p>
Resealable packaging	Resealability of container	<p><i>The chicken they can definitely put in something that can be sealed again.</i></p> <p><i>Yoghurt's packaging is nice because you can close it again.</i></p> <p><i>Those boxes that you can close again are nice.</i></p> <p><i>I think they can put the vienna's in bags that can be closed again with a zip locker.</i></p>
Recyclability of packaging		<p><i>They must in our country make it so that it can be more reusable, so that you can recycle it afterwards, that is a gap in our country.</i></p>

Concept	Sub-concept	Participants' statements
Attractive packaging	Neatness and cleanliness	<p><i>I will never take a packaging that is untidy or messy.</i></p> <p><i>The package must be neat and clean.</i></p> <p><i>I will never take one that's dirty due to handling, a neat package attracts you.</i></p> <p><i>I won't buy a box if another box has leaked something on it, or if the box is sticky I won't take it.</i></p> <p><i>If I can't find one that is properly clean I won't take it even if I know the product is clean on the inside.</i></p>
	Appetising appearance	<p><i>Must look appetising that which is on the outside of the packaging.</i></p> <p><i>There are a lot of very pretty packages, one looks at its appearance...</i></p>
	Not misleading pictures	<p><i>There mustn't be misleading pictures on the package.</i></p> <p><i>Sometimes you buy the product and it has a very pretty picture on it and then when you open it it doesn't look the same.</i></p>
	Attention capturing	<p><i>The packaging must capture the attention of the consumer.</i></p> <p><i>Packaging that is perfect to me is those that are attractive because the packages are pretty.</i></p> <p><i>It attracts you how it looks.</i></p>
	Colourfull packaging	<p><i>It must be bright, it attracts your attention, the colour of the bag because then you associate the colour with what is in the container.</i></p>

Concept	Sub-concept	Participants' statements
Acceptable packaging quality	Firm, tight undamaged packaging	<p><i>As long as the container quality is pretty good so that you are not afraid when you pick it up that you will push a hole right through it. It must be firm.</i></p> <p><i>It must hold the product on the inside properly so that what is on the inside doesn't fall out.</i></p>
Acceptable packaging quality	Airtight packaging	<p><i>Packaging must be tight, undamaged and airtight.</i></p>
Acceptable packaging quality	Plastic wrap inside carton box	<p><i>With some of those products you get the product only in the carton box, I would prefer it if the product was in a plastic bag inside the container. I think that will give better protection if you just want to use a little bit of the inside at a time.</i></p> <p><i>I would like it if the fish in the box each were in a separate bag because they are loose and if you open the box and you don't use up everything at once, the crumbs are everywhere.</i></p>
Inferior packaging quality	Soft packaging material Afraid of product spillage	<p><i>Some of those bottles are so soft.</i></p> <p><i>If you squeeze it you are afraid you'll force the juice out.</i></p>
Hygienic product quality	Unhygienic packaging Boxes and paper  Hygienic packaging Dryness of plastic bottle Plastic hygienic	<p><i>I don't like boxes and paper because it looks dirty and it smells to me.</i></p> <p><i>With milk I rather buy plastic bottles because it is isn't dirty if you touch it.</i></p> <p><i>The packaging that the 1kg viennas are packaged in is fine to me, it is hygienic.</i></p>

Concept	Sub-concept	Participants' statements
Informative packaging	<p data-bbox="217 1440 247 1598">Ingredient list</p> <p data-bbox="355 1367 386 1598">Product information</p> <p data-bbox="540 1346 571 1598">Expiry date important</p>	<p data-bbox="217 86 294 1272"><i>On the packaging everything that is in the product must be said on the package, for example mixed vegetables. You want to know what vegetables are in the package.</i></p> <p data-bbox="355 768 386 1272"><i>Product information is most important to me.</i></p> <p data-bbox="401 663 432 1272"><i>I will buy the package that contains more information.</i></p> <p data-bbox="448 474 478 1272"><i>The more information on the package, the more I will buy the product.</i></p> <p data-bbox="540 128 571 1272"><i>The expiry date. Some of those yoghurt packages don't always have readable expiry dates on them.</i></p> <p data-bbox="586 621 617 1272"><i>The expiry dates must be clearly seen on the packaging.</i></p> <p data-bbox="632 905 663 1272"><i>I always look at the expiry date.</i></p>
Transparent packaging		<p data-bbox="743 86 820 1272"><i>For me it is important that you can see what it looks like inside the packaging, for example those frozen pizzas, you don't know what it looks like on the inside.</i></p> <p data-bbox="836 747 867 1272"><i>I want to be able to see inside the packaging.</i></p> <p data-bbox="882 537 913 1272"><i>I want to see what it looks like and know what I am going to get.</i></p>

**Table A 2: Theme: Participants perceptions and expectations depicted in non-packaging attributes**

Concept	Sub-concept	Participants' statements
Price awareness	Balancing monthly budget	<i>For me it is about price because I have to make my budget at home.</i>
	Price quality association	<i>...I look at price but I think the more expensive the product is, the better the quality of the package is.</i>
	Consider price	<i>I enjoy looking at the packaging but I look at price. One must be cost effective with your money when you shop. Everything is about price, I always look at price.</i>
	Cheapest product	<i>What the package looks like doesn't bother me, but the product that's the cheapest is what I look for.</i>

## Appendix B

Participants' perceptions on different types of packaging of cold chain food

**Table B 1.1: Theme: Negative functional and personal characteristics of cold chain carton box packaging**

Concept	Sub-concept	Participants' statements
Characteristics of weak resealability	<p>Lack of resealability</p> <p>Product damage during storage</p> <p>Require additional plastic bag</p>	<p><i>It doesn't close off that well again once you have opened it.</i></p> <p><i>You cannot reseal the food in there again, for me it is a big problem.</i></p> <p><i>It is a very poor package to me because when it is open then it is open and you can't close it again.</i></p> <p><i>If you don't use up the entire contents at one time it gets freezer burn.</i></p> <p><i>The fish dries out if you try to close the box again. Its as if the fish gets a dead taste from the freezer burn. I don't like it.</i></p> <p><i>When I open the box I put the fish that I didn't use in a plastic bag, it is awful.</i></p> <p><i>It can't close again and then I put the contents in a plastic bag.</i></p>
Lack of transparency	<p>Visibility obscured</p> <p>Product visibility important</p> <p>Prefer plastic wrap over</p>	<p><i>No I don't like it, because I can't see in the box.</i></p> <p><i>I don't like that packaging because I want to see what is on the inside.</i></p> <p><i>I want to see the inside. Want to see what it looks like; I would like it if they made it transparent.</i></p> <p><i>I prefer the transparent one because I can see on the inside and how fresh it looks; I like to see through the packaging to see the product.</i></p> <p><i>Fish and chicken I would prefer if they put in a polystyrene container with a plastic wrap on top so that you can see what is on the inside that nothing has perished.</i></p>

Concept	Sub-concept	Participants' statements
Risk related packaging	Smell of boxes Concerned about health	<p><i>I don't like the way the box smells.</i></p> <p><i>I don't know how healthy the packaging is. It doesn't look that healthy to me.</i></p>
Inconvenient packaging and storage	Smaller pack required Plastic wrap inside packaging required	<p><i>Most of the time you only take out a few pieces and then you want to store it again. There are always a few left, you can put it in a smaller packaging but you must be able to see the next time what sort it is.</i></p> <p><i>A product that is firstly placed in a plastic bag and then inside the box would give better protection if you only want to use a part of the contents at a time.</i></p> <p><i>I think they can put the product on the inside in a piece of plastic, because the moment you open that box you can't put it back in the freezer again.</i></p> <p><i>Some of them have a light plastic seal around the food on the inside of the box; it protects the box from getting wet on the inside.</i></p>
Weak packaging	Box damaged Box gets soggy	<p><i>Another reason why I don't like the boxes is because they tear when you open them.</i></p> <p><i>The paper gets soggy eventually.</i></p> <p><i>You cannot put it back in your freezer like that. It is as if the box gets soggy.</i></p>

**Table B 2.1: Theme: Positive functional and price related qualities of cold chain plastic sachet**

Concept	Sub-concept	Participants' statements
Cheaper packaging	<p>Price is important</p> <p>Price determining factor</p> <p>Cheaper option</p>	<p><i>It is a consumable that has to be used everyday so price is important.</i></p> <p><i>For price I would go for it, I would use it.</i></p> <p><i>You know I buy it because it is cheaper.</i></p>
Functional packaging	<p>It works nicely</p> <p>Allows freezer storage</p> <p>Hygienic</p> <p>Seals firmly</p> <p>Easy storage</p> <p>Easily discarded</p>	<p><i>I buy this, it works very well and it is very nice.</i></p> <p><i>We buy it and freeze it, it must just be tight.</i></p> <p><i>I think it is hygienic.</i></p> <p><i>I think it seals quite firmly.</i></p> <p><i>They don't take up a lot of space and are easy to throw away.</i></p>

**Table B 2.2: Theme: Negative functional qualities of cold chain plastic sachet**

Concept	Sub-concept	Participants' statements
Wasting of product	The package spills	<p><i>I don't like it when you cut it open, half of the milk spills outside of the jug you pour it into or it spills in the sink, I usually buy the two litre milk containers.</i></p> <p><i>The bags of milk always spills.</i></p> <p><i>I just find that you have to be very nimble with your hands when you pour this or else you tend to spill.</i></p>
	The package leaks	<p><i>I have bought those but when you get home you see a leak probably due to the fact that a hole is formed when the packages are piled on each other.</i></p> <p><i>I dislike the bags due to the fact that most of them always have a hole in them and they leak because they can't take the pressure.</i></p> <p><i>We have bought them when they had leaks. You just have to make sure in the shop that it doesn't leak.</i></p> <p><i>You cannot leave it just like that because it is a mess, no I don't use it at all.</i></p> <p><i>No I don't like the bags of milk, it is a total waste, the boxes are better.</i></p>
	Turn sour	<p><i>Most of them turn sour which doesn't happen with the long life milk or bottled milk.</i></p>
Unhygienic packaging	Bacteria contamination Smell of fridge	<p><i>You pour it over in another container and then every time you open the fridge more bacteria gets in the milk.</i></p> <p><i>No I don't buy them; they get the smell of the fridge.</i></p>

Concept	Sub-concept	Participants' statements
Lack of resealability	<p>Weak resealability</p> <p>Container required</p>	<p><i>When it is open it's open. Then you have to go and put it in something else if you don't use up everything at once. I will buy the packaging if I use it a lot.</i></p> <p><i>When you put this in the freezer it is open, it cannot be sealed.</i></p> <p><i>We buy those that can seal again.</i></p> <p><i>You don't always have a container to pour the milk into.</i></p> <p><i>I don't like these because you always need something to put them in.</i></p> <p><i>I don't like this at all because once you have opened these then you have to put the milk in something else.</i></p>
Unsatisfactory packaging method	<p>Bottle packaging more satisfactory</p> <p>Inferior bag quality</p>	<p><i>I don't buy them, I walk past it, it just looks better in a bottle and it works easier in the bottle.</i></p> <p><i>I don't use this, I use the bottle because I don't know how to open it without spilling and what do I put it in.</i></p> <p><i>I prefer the bottle and it fits nicely in the fridge.</i></p> <p><i>They should make a better packaging for those milk bags.</i></p> <p><i>They can replace the bags the milk is packaged in or they can put the bag of milk in an extra bag.</i></p>
Inconvenient handling		<p><i>The bag is difficult to handle.</i></p> <p><i>It handles difficultly.</i></p> <p><i>You must just handle it very carefully because when it falls it will break.</i></p>

Concept	Sub-concept	Participants' statements
Inconvenient packaging material	<p>Difficult to open</p> <p>Bottle more convenient</p>	<p><i>You always need something to cut them open with, it is very inconvenient to me.</i></p> <p><i>I like the plastic bottle, the bag isn't convenient for me, the bottles are more convenient though.</i></p> <p><i>The bottle just works easier.</i></p>
Dislike wetness of packaging		<p><i>Another thing that puts me off is that it is wet when I touch it and then it makes everything else wet.</i></p> <p><i>When you pick it up then it is always wet and the bag makes all the other groceries wet.</i></p>

**Table 3.1: Theme: Positive physical functional and price related qualities of cold chain plastic bottle packaging**

Concept	Sub-concept	Participants' statements
More expensive product	Are willing to pay more	<p><i>It is a better product than the bag but you do pay more. Nevertheless the bottle is better than the bag.</i></p> <p><i>I like the plastic bottle more even if it is more expensive.</i></p>
Better product		<p><i>I think it is a wonderful product packaging.</i></p> <p><i>It is a nicer packaging than the bags.</i></p> <p><i>I like the bottles when I want fruit juice.</i></p>
Reusability		<p><i>You know this one is better, you can wash it out and use it again.</i></p> <p><i>You save due to the fact that you can use the container again.</i></p> <p><i>I like this one because it is reusable and convenient.</i></p>
Resealability	Seal better	<p><i>I love buying the plastic bottle because it seals easily again.</i></p> <p><i>I like it and I would rather buy it because it can close again and it is convenient.</i></p> <p><i>It can close well again.</i></p> <p><i>We buy these, they are more expensive but seal better.</i></p>

Concept	Sub-concept	Participants' statements
Convenient handling		<p><i>The bottles are more convenient than the bags.</i></p> <p><i>I would rather choose the bottle. It works easier.</i></p> <p><i>They work nicely and pour easily.</i></p> <p><i>I always take the bottle, it is a lot less effort.</i></p>
Easy storage		<p><i>The square bottle fits easily in your freezer door, it is flatter and longer.</i></p> <p><i>I will buy it because it is a square form and you can fit it in the freezer more easily.</i></p>
Strong packaging quality		<p><i>They are quite strong.</i></p>
Convenient for large quantity		<p><i>If one requires big amounts then this one is good.</i></p>
Recyclability of packaging		<p><i>I buy them if there is a recycle symbol on the bottom of the bottle.</i></p> <p><i>If it is recyclable I will take it.</i></p>
Hygienic packaging		<p><i>... It doesn't get the smell of the fridge.</i></p>

**Table B 3.2: Theme: Negative functional and price related qualities of cold chain plastic bottle packaging**

Concept	Sub-concept	Participants' statements
Expensive packaging		<p><i>I would not go for the two litre container because it does definitely push up the price a bit.</i></p> <p><i>These cost you more because you pay more for the container.</i></p> <p><i>It is quite expensive to buy the bottles because my kids drink a lot of milk.</i></p> <p><i>My kids tell me to buy the bottle but I want to buy the bags because they are cheaper.</i></p> <p><i>I would buy this product if I could afford it.</i></p>
Lack of transparency		<p><i>It isn't transparent. If the bottle was transparent I would use it again because then you could see through it.</i></p>
Lack of reusability	Can't be used again	<p><i>Plastic bottles are not very healthy and especially not for using again.</i></p> <p><i>When it is sealed I will buy it and use it up but when the product has been used up I will not use the container again or pour milk in it again.</i></p>
Too large quantities		<p><i>We don't buy such great amounts because we freeze the bags of milk.</i></p>

**Table B 4.1: Theme: Positive, physical and functional qualities of cold chain foil paper packaging**

Concept	Sub-concept	Participants' statements
Baking purposes	Use it for baking	<p><i>I will buy this packaging for baking purposes only. It is nice when you bake.</i></p> <p><i>This is a very good packaging; it is great when you are baking.</i></p>
Hygienic packaging	They are hygienic	<p><i>I like them because they are hygienic and work easily, I like the foil.</i></p>
Reusability		<p><i>I have never had a problem with these because I can use them afterwards. ... I reuse the packaging again.</i></p>
Neatness of packaging		<p><i>It is a very neat packaging.</i></p>
Convenience of packaging	Proportions in grams are helpful	<p><i>This is just fine to me, you can open it and it shows how much 200g or 100g is, there are proportions, very nice.</i></p> <p><i>The packaging has those proportions in grams that show you where to cut it off if you want a certain amount, I quite like that.</i></p> <p><i>It is convenient due to the fact that you can see where to cut of the amount you need, it is very good.</i></p>

Concept	Sub-concept	Participants' statements
Resealability	Seals good	<p><i>It is good and they seal well, I usually take it out and put it another thing when I get home.</i></p> <p><i>It is a nice packaging, I don't have a problem with it, it seals easily and is compact and it stores easily.</i></p>
Transparency		<p><i>If it came in a transparent container I would quite like it.</i></p>

**Table B 4.2: Theme: Negative functional qualities of cold chain foil paper packaging**

Concept	Sub-concept	Participants' statements
Lack of reusability	Have to put in container	<p><i>I don't use those, I prefer the plastic container. If I have guests then I would buy that one and put it a nice container.</i></p> <p><i>I don't like it due to the fact that I have to put it in a container and then everything gets messy.</i></p> <p><i>I don't want to put the margarine in another container again that is why I always choose the plastic container.</i></p>
Lack of clean and neat packaging	Hands get dirty	<p><i>I don't like them at all because when you open them your hands get dirty.</i></p> <p><i>The paper on the outside gets messy too when you close it, it is very impractical to me.</i></p> <p><i>With the paper margarine everything gets dirty, the container doesn't get dirty like the paper does.</i></p> <p><i>If the margarine melts your hands are dirty and oily.</i></p>
Poor quality packaging	The product gets dirty	<p><i>When you open and close the paper a lot the shiny stuff on the paper goes off and then the margarine has this stuff on it.</i></p> <p><i>It doesn't look nice at all to me, anything can go into that paper as it doesn't seal tightly.</i></p>
Lack of resealability	Plastic container is resealable	<p><i>I would rather buy the plastic container, the plastic container is sealed with everything on the inside.</i></p> <p><i>I don't particularly like this type of packaging but it is fine for margarine but I still prefer something that can seal quite well again.</i></p> <p><i>I personally prefer when we are alone to use the product straight out of the container, it is a lot less effort than to put the product in another container that has to be cleaned again.</i></p>

## Appendix C

The influence of packaging of cold chain food on participants' decision to purchase the product

**Table C 1: Theme: Participants who are not influenced by packaging to purchase**

Concept	Sub-concept	Participants' statements
Previous experience	<p>Product on special</p> <p>Keep to known product</p> <p>Brand loyalty</p>	<p><i>Packaging doesn't influence me that much, I know a few good products and if they are on special I am inclined to take them rather than to look at the packaging.</i></p> <p><i>I stick with what I know and have been using for a long time, I like stork butter,</i></p> <p><i>No it doesn't influence me I have my certain brands which I use, so I buy according to experience.</i></p> <p><i>I believe in brands. I don't care if they make it orange today and green tomorrow, I will still take the same package.</i></p>
Price sensitivity	<p>Price influence your decision</p> <p>Take the cheapest</p>	<p><i>The packaging doesn't influence me but the price does.</i></p> <p><i>Most of the time it is the price that influences my decision most.</i></p> <p><i>Sometimes the packaging influences me, because sometimes the packaging makes the product expensive. It must be economically packaged.</i></p> <p><i>I will definitely look that the packaging is not too boastful or looks too expensive.</i></p> <p><i>I usually take the cheapest one and it doesn't necessarily mean the outside of the package isn't inferior to the other package, they can also be colourful.</i></p> <p><i>I look at price, because no name is a bit cheaper sometimes.</i></p>

**Table C 2: Participants' who are influenced by packaging to purchase**

Concept	Sub-concept	Participants' statements
Hygienic product qualities		<p><i>The packaging must just be hygienic so that contamination doesn't happen.</i></p>
Functional product qualities	Durable packaging	<p><i>I will try it if the packaging is durable.</i></p>
	Sealability of packaging	<p><i>I think the packaging plays an important role for example the bags of milk...you cut them open and then they stay open whereas with those bottles you know it stays sealed and it stays fresh for longer.</i></p> <p><i>Packaging that you can seal again like the viennas that you get you cut open and then you have to put them in another container. It plays an important role in your decision-making.</i></p> <p><i>Packaging really plays the biggest role. The way in which it is packaged like the cheese that you can close again.</i></p> <p><i>Yes packaging influences me to a great extent, that is why I won't buy margarine that is packaged in a foil paper, because you open it and then you must store it in another container.</i></p>
	Ease of handling	<p><i>It must also be easy to handle.</i></p>
	Freshness of product	<p><i>All the cold meats that you buy at the meat counter stay fresh for longer because of the packaging that you can close again.</i></p> <p><i>If only there was a better packaging for the loose cold meats so that they would stay fresh for longer.</i></p>
Functional product qualities (continued)	Storage ability of packaging	<p><i>The package must be able to be stored nicely in your fridge.</i></p>
	Convenience of packaging	<p><i>With milk I will choose the tetra boxes because they work more easily for me.</i></p>

		<p><i>The margarine containers may be more expensive but they work better and easier and are also more convenient.</i></p> <p><i>Form is also important to me because some products handle easier in a square form than in a round form.</i></p>
Quality of product	Product freshness	<p><i>The packaging itself doesn't influence my decision, the product must just be fresh, that influences my decision the most then packaging doesn't concern me that much.</i></p>
Attractiveness of packaging	Good looking packaging	<p><i>A product that's in something pretty looks good to you.</i></p> <p><i>A pretty packaging will attract me.</i></p> <p><i>What the box looks like attracts you. I didn't think it was important to me but now that I actually think about the way I shop it is very important to me.</i></p> <p><i>What a packaging looks like is important to me.</i></p> <p><i>A person looks to see if it is pretty and neat, then it attracts your attention.</i></p>
Attractiveness of packaging (continued)	<p>Visual quality of packaging</p> <p>Hygienic looking packaging</p> <p>No name aren't attractive</p> <p>Pictures are important</p>	<p><i>If a packaging looks cheap you are not going to buy it.</i></p> <p><i>As long as it is neat and clean then it plays a role, but other than that there isn't anything that's important to me.</i></p> <p><i>It definitely plays a role, I like it if it is neat and it is important to me that it looks neat.</i></p> <p><i>It is important that it isn't sticky or dirty when you touch it.</i></p> <p><i>I don't criticize no name products, but they aren't attractive.</i></p> <p><i>The way a packaging looks, for example no-name doesn't show and say much about what the product looks like and what there is on the inside, whereas the other brands have beautiful pictures and are colourful. I am quite a visual person.</i></p> <p><i>I like it if I don't have to read and just look at pictures.</i></p>

	Colour is important	<p><i>Sometimes the packaging influences me because one looks at pictures on the packaging.</i></p> <p><i>Colour plays an important role to me because it brings the product to you.</i></p> <p><i>The product speaks to you via the colour of the packaging.</i></p> <p><i>Colour of the packaging and the way the product is presented plays a definite role in my decision-making because it is going to attract your attention.</i></p>
Informative packaging	Product information important Expiry date important	<p><i>Product information is the most important to me.</i></p> <p><i>The packaging doesn't influence me, however, the expiry date does.</i></p>
Expensive packaging		<p><i>Depends on what product I am buying, because with some products I would rather buy the more expensive packaging if it is really better like for example a margarine container.</i></p>
New products		<p><i>Packaging especially play a role in my decisions when it comes to new products that I don't know.</i></p>

**Appendix D**  
**Letter of Consent**

## LETTER OF CONSENT



**Vebruikerswetenskappe**

Tel (018) 299 2483

Faks (018) 299 2470

### TITLE OF RESEARCH PROJECT:

*The influence of packaging of cold chain food products on consumers purchasing decisions: an exploratory investigation*

Dear Mr/Ms

Date: ..../.../2006

### AIM AND NATURE OF THE STUDY

The aim of this research project is to explore the influence of the packaging of cold chain food products on the purchasing decisions of a sample of South African consumers. Interviews will be employed to address this aim and to obtain the information required to fulfill the objectives of this project.

### RESEARCH PROCEDURE

- You will be asked to participate in a semi-structured interview regarding food product packaging.
- The interview can take place in any environment where there will be no interruptions.
- The interview will be guided by a facilitator and will offer you the opportunity to voice your opinion about food product packaging.
- No answer or response would be regarded as correct or incorrect.
- No preparation is required for the discussion.

### NOTICE OF RECORDINGS

It is brought to your attention that the discussions will be recorded on tape, to ensure that valuable information is preserved and analyzed within the appropriate context. After completion of the interviews, these recordings will be transcribed to text. You have the right to examine the transcribed text at any given time during the course and completion of the research project.

### **DECLARATION OF CONFIDENTIALITY**

Your opinion is considered strictly confidential and only members of the research team will have access to the information. No data published in dissertations or journals will contain any particulars that could identify you as a participant in this study. You are therefore assured of your anonymity.

### **POSSIBLE BENEFITS OF THE STUDY**

The information gained from these interviews can prove to be particularly useful in making recommendations regarding packaging to improve the use of packaging in such a way as to benefit the consumer. Furthermore, it can also add value to consumers' purchases by shedding light on the needs and expectations consumers have regarding food product packaging.

### **WITHDRAWEL OF PARTICIPATION**

It is brought to your attention that your participation is voluntary and that you have the right to withdraw from the interview at any given time should you wish to do so.

### **INFORMATION**

Should you require additional information, please do not hesitate to contact Stephne Spangenberg, (Masters' degree student) at 082 444 1407 or the project leader, Dr. M van der Merwe at 018 2992476.

### **DECLARATION OF CONSENT**

I, the undersigned \_\_\_\_\_

(full names and ID nr.) read through the information provided concerning the research project and declare that I fully understand the content thereof. I was given the opportunity (if so preferred) to discuss any aspects of the project with the researchers and hereby voluntary agree to participate in the project. I hereby give my consent to participate in the above mentioned project.

I would hereby like to exempt the University or any employee or any student of the University from any liability which I might incur during this project. I furthermore waive my right to institute

any claims whatsoever against the University which may arise during the running of the project or the conduct of any person involved in the project, except for claims arising from the negligent conduct of the University or its employees or students.

I received a signed copy of the consent form.

Signature of participant: \_\_\_\_\_

Signed at \_\_\_\_\_ on \_\_\_\_\_

WITNESSES

1. \_\_\_\_\_

2. \_\_\_\_\_

## Appendix E

### Semi-structured interview guide and projective technique

## SEMI-STRUCTURED INTERVIEW GUIDE

You are going to be exposed to different types of packaging. It is important to focus on the type of packaging. You must take into consideration that it must contain food. No answers will be regarded as wrong.

### OBJECTIVES

- 1) *To explore a sample of South African consumers' perceptions of the packaging of cold chain foods.*
- 2) *To explore the influence that the packaging of cold chain foods has on a sample of South African consumers' decision to purchase.*

**Method 1:** Semi-structured interviews, participants are not exposed to any packaging (unprompted awareness).

**Question 1:** What do you think of the packaging of cold chain food products? And what are your expectations regarding the packaging of cold chain food?

**Question 2:** How does packaging of cold chain food products influence your purchase decisions?

**Method 2:** Projective technique through exposing the different packaging types one after the other.

**Question 3:** What do you think about this packaging?

**Appendix F**  
**Editorial prescriptions**

## **British Food Journal**

Submissions should be sent to:

### **The Editor**

Professor Chris Griffith

Head, Food Research and Consultancy Unit

University of Wales Institute,

Cardiff

E-mail:

[CGriffith@uwic.ac.uk](mailto:CGriffith@uwic.ac.uk)

Three copies of the manuscript should be submitted in double line spacing with wide margins. All authors should be shown and author's details must be printed on a separate sheet and the author should not be identified anywhere else in the article.

As a guide, articles should be between **3,000** and **5,000** words in length. A title of not more than eight words should be provided. A brief autobiographical note should be supplied including full name, affiliation, e-mail address and full international contact details.

### **Editorial objectives**

The aim of the journal is to provide a vehicle for the dissemination of food-related research of the highest academic quality to an international multi-disciplinary audience.

### **Editorial scope**

Work on any aspect of food will be considered for publication provided it is of a high academic standard.

Authors should take into account the international readership of the journal when drafting papers.

The aim of the journal is to present work in a manner which is accessible to a readership from a variety of backgrounds, including different academic disciplines and non-academics.

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e.g. Calabrese, F.A. (2005), "The early pathways: theory to practice – a continuum", in Stankosky, M. (Ed.), *Creating the Discipline of Knowledge Management*, Elsevier, New York, NY, pp. 15-20.

*For journals:* Surname, Initials (year), "Title of article", *Journal Name*, volume, number, pages.  
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*For working papers:* Surname, Initials (year), "Title of article", working paper [number if available], Institution or organization, Place of organization, date.  
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