

Copyright is owned by the Author of the thesis. Permission is given for a copy to be downloaded by an individual for the purpose of research and private study only. The thesis may not be reproduced elsewhere without the permission of the Author.

**FOOD PACKAGING AND ITS INFLUENCE ON  
THAI' ELDERLY CONSUMER'S FOOD CHOICES**

A thesis presented in fulfilment of the requirements for the degree of  
Master in Packaging Technology  
At Massey University, Palmerston North, New Zealand

Pittiporn Ounsuvan

2010



*Convenience is a powerful force driving food technology.*

## ABSTRACT

Advancing age is leading to changes in consumer needs, desires and aptitude. One need which is continuous, regardless of age, is the need for food. For some consumer's age associated change can consequently limit their ability in grocery shopping and opening of food packages. Openability of food packaging for aged consumer is seen to be a major problem because some types of packages are difficult to open. As a consequence there is an actual need to provide elderly consumers with more supportive environment when grocery shopping and supportive instrument when using the packages by providing sufficient packaging functions.

This research is in grocery shopping behaviour and attitude of older consumer (60 +) in different culture associated with various different types of food packaging and packaging utilisation. The aim of this research was to determine the different culture of consumers in grocery shopping behaviour and experience of elder consumers in Bangkok, Thailand with the aged from 60 years and over.

Data collection involved quantitative (Questionnaire survey) and qualitative (Focus group) with elder consumers aged from 60 years. The quantitative findings are collected from a consumer questionnaire (n= 100), which mainly focused on consumer grocery shopping behaviour related to packaging utilisation and problems encountered. The result of questionnaire collections were then analysed using the Statistical Package for Social Science (SPSS) version 15. Next, qualitative Focus groups defined in depth the grocery shopping experience as well as packaging utilisation. Each focus group consisted of six or seven adults and was carried out in a familiar social setting. Both the qualitative and quantitative results have identified shopping patterns and motivations for purchase decisions among this age group, and show that elderly consumer interface with both positive and negative experiences when accessing food products.

The result shows that the majority of elder people in Bangkok normally go grocery shopping on a weekly basis in one of the multiple food retailers. Most of the participants had already retired from work and they are commonly living with their family member but they do their own house work. However, living situation did not

have any affect in grocery shopping or packaging utilisation. Education and income could be factors that affect purchase decisions and packaging used. Packaging labels seems to be a major problem for aged consumers, as they find them difficult to read. In terms of packaging utilisation, most problems occurred with the packaging closure rather than packaging itself. Consumer health can affect packaging utilisation and openability of some type of packages which could lead to injury. The thesis discusses the advantages and disadvantages of various different types of food packaging.

## ACKNOELEDGEMENTS

This thesis would not be successfully completed without such a great number of people whose contribution in assorted ways to the research and the creation of this thesis deserved special mention. It is pleasure to express my gratitude to them all in my acknowledgement.

In the first place I would like to record my gratitude to my best supervisor, Tom Robertson for his supervision, advice, guidance and great opportunity from the very early stage of my master degree and completed of this research. He is also giving me extraordinary experiences throughout the work and happy living and studying.

Next, I would like to express my personal gratitude to Associate Professor Vanee Chonhenchob and Dr. Pisit Dhamvitee for their understanding, guidance, encouragement, great help and support throughout the process of data collection in Bangkok, Thailand. This research would not have been successful if I had not received all of their support.

I am indebted particularly to Kathy Hamilton for her supervision, understanding, guidance and great support and always giving me an opportunity during study at Massey University, New Zealand.

My Special thanks to Anuchita Moongngarm, Thamarath Pranamonkith, Werawate Utto and family, Ratanawan Jansasithorn (Pang), Jantana Susomboon, Piyamas Tancharoenrat, Tiyaporn Luangpipat for their inspiration, encouragement and support. It is a pleasure to collaborate with you guys and many thanks for being my best friends

My deepest gratitude is extended to Ms. Gay Eustace, whom I esteem as my grandmother in Palmerston North, for her love, care, guidance, encouragement and support in all situations. Also, I would like to give my special thanks to Aunty Maria and Smith's family for the warm love and care and helping me to improve my English skill and ability.

Last but not least, where would I be without my family? My parents deserve special mention for their inseparable support and prayers. My father, Pinyo Ounsuvan, in the first place is the person who put the fundament my learning character, showing me the joy of intellectual pursuit ever since I was child. Even now, he is always encouraging me and fully supports me in any situations and with everything I intend to do in the near future. My mother, Sunan Ounsuvan, is the one who sincerely raised me with her caring and gently love and always listen to me and giving me such a great support. My deepest gratitude to my parent for giving me an opportunity and always be with me all the time.

It is also a pleasure to pay tribute also to my partner Jirapa Lertsinsongserm for her encouragement, support, and joyful. Now, I would like to thanks everybody who was important and being in part of the successful realization of this thesis, as well as expressing my apology that I could not mention personally one by one.

# TABLE OF CONTENTS

ABSTRACT .....	iii
ACKNOELEDGEMENTS .....	v
TABLE OF CONTENTS .....	vii
LIST OF FIGURES .....	x
LIST OF TABLES .....	xii
ABBREVIATIONS .....	xiii
CHAPTER 1 .....	1
INTRODUCTION .....	1
1.1 GENERAL OVERVIEWS OF FOOD PACKAGING .....	1
1.2 FOOD PACKAGING DEVELOPMENT AND PROBLEMS INTERFACED BY AGED CONSUMER .....	2
1.3 DIFFERNT LIVING LIFESTYLE AND CULTURES INFLUENCING IN FOOD CHOICES.....	3
1.4 RESEARCH STRUCTURE AND OBJECTIVES OF THE THESIS.....	4
1.4.1 Research structure .....	4
1.4.2 Aim and objectives of thesis .....	5
CHAPTER 2 .....	6
REVIEW OF THE LITERATURE.....	6
2.1 INTRODUCTION .....	6
2.2 GENERAL FOOD PACKAGING.....	6
2.3 PACKAGING MATERIALS .....	7
2.3.1 Paper and cardboard packaging .....	8
2.3.2 Glass packaging .....	8
2.3.3 Metal packaging.....	9
2.4 PLASTIC PAKCAGING .....	12
2.5 OTHER HYBIRD PACKAGING SYSTEMS .....	13
2.6 COMMON FOOD PACKAGING CLOSURES .....	14
2.6.1 Ring pull.....	15
2.6.2 Peelable seal.....	16
2.6.3 Screw-off lid/cap.....	17
2.6.4 Twist-on and off cap or Press-on/twist-off metal closure.....	17



2.6.5 Crown closure .....	18
2.6.6 Zip lock .....	19
2.6.7 Child-resistant closure.....	20
2.7 ELDERLY CONSUMERS .....	21
2.8 THE CIRCUMSTANCES OF ELDERLY POPULATION WORLDWIDE AND THAILAND .....	22
2.9 COMMON HEALTH PROBLEMS OF AGED CONSUMER THAT EFFECT ON GROCERY SHOPPING AND PACKAGING USED.....	23
CHAPTER 3 .....	24
RESEARCH METHODOLOGY .....	24
3.1 INTRODUCTION .....	24
3.2 ETHICAL CONSIDERATIONS .....	24
3.3 SELECTION OF THE STUDY SITE .....	25
3.4 DATA COLLECTION METHODS .....	25
3.4.1 Consumer questionnaire survey .....	26
3.4.2 Focus group study or group study or group discussion .....	28
CHAPTER 4 .....	31
QUANTITATIVE (QUESTIONNAIRE SURVEY) .....	31
4.1 INTRODUCTION .....	31
4.1.1 Demographic characteristics of the participants .....	31
4.1.2 Grocery shopping habits .....	35
4.1.3 Consumer attitude with food packaging .....	38
4.1.4 Consumer attitude with food packaging materials.....	40
4.1.5 Consumer attitude with the package closure or lid associate with opening problems.....	41
4.1.6 Consumer indications of experience on opening and using the packaging that can be harmful or get injury.....	43
4.1.7 Health condition that can be affected to the packaging utilisation .....	46
CHAPTER 5 .....	48
QUALITATIVE ANALYSIS (FOCUS GROUP STUDY).....	48
5.1 INTRODUCTION .....	48
5.2 FOCUS GROUP STUDY AT THE BANGKOK ELDERLY COMMUNITY ...	48
5.3 GLASS PACKAGING .....	50
5.3.1 Glass jars .....	50

5.3.2 Glass bottles .....	52
5.3.3 Glass packaging closures .....	53
5.4 PLASTIC PACKAGING .....	60
5.4.1 Plastic bottle .....	60
5.4.2 Plastic jars .....	62
5.4.3 Pottle .....	64
5.4.4 Plastic bag and sachet.....	67
5.4.5 Aluminium foil bag and Zip lock bag.....	67
5.5 ALUMINIUM CAN AND TIN CAN.....	70
5.6 TETRA PAK AND ASEPTIC PAKAGING .....	74
5.7 CARDBOARD AND PAPER PACKAGING .....	77
5.8 POSSIBILITY TO IMPROVE PACKAGING .....	78
CHAPTER 6 .....	79
CONCLUSION .....	79
6.1 CONCLUSION.....	79
6.2 RESEARCH RECOMMENDATIONS .....	81
REFERENCES.....	82
APPENDIX I.....	90
ETHIC COMITTEE COFIRMATION LETTER .....	90
CONSENT FORM FOR PARTICIPANTS .....	91
CONSENT FORM FOR PARTICIPANTS [THAI VERSION] .....	92
APPENDIX II .....	93
INFORMATION SHEET .....	93
APPENDIX III.....	97
QUESTIONAIRE SURVEY .....	97
QUESTIONAIRE SURVEY [THAI VERSION].....	108
APPENDIX IV.....	119
DATA OF QUESTIONAIRE SUMMARISED .....	119
STATISTIC ANALYSIS OF DEMOGRAPHIC .....	135
APPENDIX IIV .....	138
VERBIUM FORM THE FOCUS GROUP:.....	138

## LIST OF FIGURES

Figure 2-1 Packaging can have many levels. All levels of the system must work together (Soroka 2002).....	7
Figure 2-2 paper packaging.....	8
Figure 2-3 Glass packaging.....	9
Figure 2-4 Aluminium can.....	10
Figure 2-5 Metallise bag .....	11
Figure 2-6 Tin can.....	12
Figure 2-7 Plastic packaging.....	13
Figure 2-8 Tetrapacks (Left) and Composite Packaging (Right).....	14
Figure 2-9 Ring pull.....	15
Figure 2-10 Polymer package with a Peelable seal.....	16
Figure 2-11 Screw cap .....	17
Figure 2-12 Twist on and off cap.....	18
Figure 2-13 Crown cap .....	19
Figure 2-14 Zip lock bag .....	20
Figure 2-15 Child-resistant closures .....	20
Figure 2-16 indicates the aged population in Thailand (Jitapunkul and Bunnag (1999)). .....	21
Figure 2-17 indicates the aged population in New Zealand over decades.....	22
Figure 4-1 Percentage of Male and female in the initial survey .....	31
Figure 4-2 The demographic of elderly consumer in Bangkok, Thailand with different living situation. (N=100).....	32
Figure 4-3 The demographic of elderly consumer in Bangkok, Thailand with different living situation. (N=100).....	33
Figure 4-4 The demographic of elderly consumer in Bangkok, Thailand with different living situation. (N=100).....	34
Figure 4-5 The demographic of elderly consumer in Bangkok, Thailand with different living situation. (N=100).....	34
Figure 4-6 Comparable on grocery shopping frequency between male and female.....	35
Figure 4-7 Comparable on grocery shopping frequency with the different age group...	36
Figure 4-8 comparable of the grocery shopping frequency with the living situation.....	37

Figure 4-9 indicates what the predominant hand elderly would use to open containers (N=100).....	44
Figure 4-10 indicates of the currently classify of health condition.....	46
Figure 4-11 indication of symptoms that could affect the opening ability (N = 100) ...	47
Figure 5-1 Glass jar.....	51
Figure 5-2 Glass jar with the lug closure or twist on-off closure .....	52
Figure-5-3 Glass bottle.....	53
Figure 5-4 Screw cap .....	54
Figure 5-5Screw cap with wide glass jar .....	54
Figure 5-6 illustrated the lug closure for wide mouth jar and the bottle.....	55
Figure 5-7 Twist on and off cap .....	55
Figure 5-8 Crown cap.....	56
Figure 5-9 Flip top .....	57
Figure 5-10 Ring pull .....	57
Figure 5-11 Ring-pull under flip top cap .....	58
Figure 5-12Plastic bottles.....	60
Figure 5-13 Ring-pull under flip top cap .....	61
Figure 5-14 Plastic bottle for cabonate drinks .....	61
Figure 5-15 Plastic bottle with screw cap .....	62
Figure 5-16Plastic jars.....	63
Figure 5-17Plastic jar with screw cap .....	63
Figure 5-18Plastic potter .....	64
Figure 5-19Plastic bags .....	67
Figure 5-20 Foil package with plastic tray inside (a.), Zip lock bag (b), Aluminium foil without tearing step .....	68
Figure 5-21 Metal packaging .....	70
Figure 5-22 Tin cans .....	71
Figure 5-23 Tin cans with plastic cover cap .....	71
Figure 5-24 Tin can within plstic cover pack.....	72
Figure 5-25 Tetra Pak.....	74
Figure 5-26 Tetra Pak with plastic cap .....	75
Figure 5-27 Paper box.....	77
Figure 5-28 Paper box with tear strip.....	77

## LIST OF TABLES

Table 4-1 Frequency of respondents' food choices with packaging (N=100).....	38
Table 4-2 indicate how important of each factor is to you when you choose a food product. (N = 100).....	39
Table 4-3 the consumer like the different types of food products contained in different types of packaging materials.....	40
Table 4-4 The consumer has ever encountered problems with the opening and recloses or reseals the different types of the food packaging (N = 100).....	42
Table 4-5 indicates the user have ever had an injury when opening or using a package. ....	43
Table 4-6 indicates the type of packaging that normally caused problems or injury .....	43
Table 4-7 indicates that the user have ever had to ask people to help you open food packages (N = 100) .....	44
Table 4-8 indicates the type of packaging that normally participants have difficulties to open and they asked for help.....	45
Table 4-9 indicates that the consumer have ever stopped buying a product because of the difficulties with the packaging. ....	45
Table 4-10 indicates the type of packaging that consumer stop buying these products .	45
Table 5-1 Focus group participation .....	49
Table 5-2 The summarizing if advantages and disadvantages of glass packages.....	59
Table 5-3 The summarizing if advantages and disadvantages of plastic bottles and jars packages.....	65
Table 5-4 The summarizing if advantages and disadvantages of plastic bag, sachet and zip lock bag and foil packages .....	66
Table 5-5 The summarizing if advantages and disadvantages of aluminium can and tin can.....	69
Table 5-6 The summarizing if advantages and disadvantages of Tetra Pak and Aseptic packages.....	73
Table 5-7 The summarizing if advantages and disadvantages of cardboard and paper packages.....	76
Table 5-8 Summarising of possibility to improve packaing.....	78

## ABBREVIATIONS

CRC            Child-resistant closure