



FACTORS AFFECTING PURCHASE INTENTION OF BANGKOK
CONSUMERS FOR CENTURY EGG

By

SUNISA TEERAPREEDAKUL

A Thesis Submitted in Partial Fulfillment
of the Requirements for the Degree of

Master of Business Administration

Graduate School of Business
Assumption University
Bangkok Thailand

October 2003

FACTORS AFFECTING PURCHASE INTENTION OF BANGKOK CONSUMERS FOR CENTURY EGG

By

SUNISA TEERAPREEDAKUL

A Thesis submitted in partial fulfillment
of the requirements for the degree of

Master of Business Administration

Examination Committee :

1. Dr. Theerachote Pongtaveewould (Advisor)
2. Prof. Navin Mathur (Member)
3. Dr. Ioan Voicu (Member)
4. Dr. Adarsh Batra (Member)
5. Assoc. Prof. Wirat Sanguanwongwan (MUA Representative)

Examined on : 28 October 2003

Approved for Graduation on :

Graduate School of Business
Assumption University
Bangkok Thailand
October
2003

ABSTRACT

This research focuses on examining the factors relating to intention of purchasing century egg. The research's objectives are: (1) to examine relationship between consumers' concerns about food safety with purchase intention of century egg; and (2) to determine relationship between product attributes of century egg and purchase intention of consumers. There are two main independent variables in this study: the perception about food safety concerns and the perception about importance of product attributes. The first independent variable (the perception about food safety concerns) consists of 2 sub-variables, which are chemical, microbiological hazards. Another independent variable (the perception about importance of product attributes) consists of 6 sub-variables: the perception about importance of appearance (color of century egg's eggshell), availability, nutrition, price, quality and usage. The purchase intention for century egg is the dependent variable of this research.

Concerning methodology, a survey was applied for this research. Self-administered and closed-ended questionnaires were distributed to 300 respondents, both males and females, who live in Bangkok area and have purchased century eggs. The questionnaires were given to respondents at six bazaars in Bangkok: Klong Teay market, Huay Kwang market, Bang Sue market, Vong Vien Yai market, Bang Kapi market, and Nakorn Thai (Lad Praw 101) market.

In testing the eight hypotheses of this research, the Spearman's rank-order correlation coefficient was applied to test the relationship between the independent and dependent variables. The results from the test showed that only five independent

variables were related to the purchase intention for century egg: (1) the perception about chemical hazard, (2) the perception about microbiological hazard, (3) the perception about importance of appearance, (4) the perception about importance of quality, (5) the perception about importance of usage. The first-two variables are negatively associated with the purchase intention. Others are positively associated with intention to purchase the century egg

The conclusion of this research is that factors affecting intention to purchase century egg are concerns of chemical, microbiological hazard, appearance (color of century egg's eggshell), the quality, the usage of century egg. Therefore, manufacturers and marketers of century egg should regard these factors in order to develop their products for satisfying consumers as well as drawing the intention of consumers to purchase products.

The next point of expansion research should deeply study in each factor which is associated with the intention of purchasing century egg and ought to focus on other factors which may be related to purchase intention for this kind of preserved egg. In addition, the further research may study the intention to purchase century egg of consumers in other regions of Thailand because this research only focused on studying the intention to purchase century egg of Bangkok consumers.

ACKNOWLEDGEMENT

I am deeply grateful to Dr. Theerachote Pongtaweewould, my thesis advisor, for his invaluable suggestions and comments that are very useful and essential for writing this thesis. As an advisor, he supported and encouraged me to complete this study. I would like to extend my sincere thanks to Assoc. Prof. Dr. Navin Mathur, chairman of thesis committee, Dr. Ioan Voicu and Dr. Adarsh Batra, thesis committee members, for their constructive suggestions. In addition, I would also like to thank to Dr. Jean Wolfe Walzer, my thesis editor, for her kindness.

On my personal side, I owed more than I can express to my father, mother, sisters, and brothers, who have to bear with me through the tumultuous and tempestuous hours to write my thesis.



TABLE OF CONTENTS

	Page
Chapter I: Generalities of the study	1
1.1 Introduction of the Study	1
1.1.1 Century Egg	3
1.1.2 Century Egg Industry	5
1.2 Statement of the Problem	8
1.3 Research Objective	8
1.4 Limitations of the Research	8
1.5 Scope of the Research	9
1.6 Significance of the Study	9
1.7 Definition of Terms	10
Chapter II: Literature Review	12
2.1 Relevant Theories	12
2.1.1 Consumer Decision Process	12
2.1.2 Perception	17
2.1.3 Food Safety	18
2.1.4 Product Attributes	22
2.2 Previous Empirical Research	30
Chapter III: Research Framework	35
3.1 Conceptual Framework	35
3.2 Research Hypothesis	37

	Page
3.3 Concepts and Variable Operationalization	39
Chapter IV: Research Methodology	43
4.1 Data Source and Sampling Design Process	43
4.2 Data Collection	46
4.3 Data Measurement	47
4.3.1 Questionnaire	47
4.3.2 Pre-testing	50
4.4 Data Analysis: Statistics Used	51
4.4.1 Descriptive Statistics	52
4.4.2 Inferential Statistics	52
Chapter V: Data Analysis	56
5.1 The Analysis personal Data of the respondents	56
5.2 Hypothesis Testing	63
Chapter VI: Summary of findings, Conclusions and Recommendations	82
6.1 Summary of findings	82
6.2 Conclusions	83
6.3 Recommendations	84
6.3.1 Recommendation for century egg's manufacturers and marketers	84
6.3.2 Further Study	88

Bibliography

Appendix A

Questionnaire (English)

Questionnaire (Thai)

Appendix B

Output from SPSS: Reliability Analysis



LIST OF TABLES

	Page
Table 1.1: The quantity of productivity, consumption and export of egg in 1998-2002	2
Table 1.2: Comparative nutrition between a fresh duck egg and a century egg	4
Table 1.3: Century duck egg brand and price in supermarket	7
Table 3.1: Operational definition of variables	39
Table 4.1: Sample sizes used in marketing research studies	45
Table 4.2: The number of respondents in each bazaar	47
Table 4.3: Variables and question numbers	49
Table 4.4: Reliability value for pre-testing	51
Table 4.5: Hypothesis and statistics used	54
Table 5.1: Gender of the respondents	57
Table 5.2: Age of the respondents	58
Table 5.3: Occupation of the respondents	60
Table 5.4: Educational level of respondents	61
Table 5.5: Spearman's rank-order correlation coefficient test between the perception of chemical hazard and purchase intention	63
Table 5.6: Spearman's rank-order correlation coefficient test between the perception of microbiological hazard and purchase intention	65
Table 5.7: Spearman's rank-order correlation coefficient test between the perception of importance of appearance and purchase intention	67

	Page
Table 5.8: Spearman's rank-order correlation coefficient test between the perception of importance of availability and purchase intention	69
Table 5.9: Spearman's rank-order correlation coefficient test between the perception of importance of nutrition and purchase intention	71
Table 5.10: Spearman's rank-order correlation coefficient test between the perception of importance of price and purchase intention	73
Table 5.11: Spearman's rank-order correlation coefficient test between the perception of importance of quality and purchase intention	75
Table 5.12: Spearman's rank-order correlation coefficient test between the perception of importance of appearance and purchase intention	77
Table 5.13: Summary of results of hypothesis testing group A (the perception of food safety concerns)and purchase intention	79
Table 5.13: Summary of results of hypothesis testing group B (the perception of importance of product attributes) and purchase intention	80

LIST OF FIGURES

	Page
Figure 2.1: Five-stage model of the consumer buying process	13
Figure 2.2: Steps between evaluation of alternatives and purchase decision	16
Figure 3.1: The Conceptual Framework	36
Figure 5.1: Age of respondents	57
Figure 5.2: Gender of respondents	59
Figure 5.3: Occupation of respondents	60
Figure 5.4: Educational level of respondents	62



CHAPTER I

GENERALITIES OF THE STUDY

1.1 Introduction of the Study

Egg is a high nutrient food that is low in price compared with other protein foods. People consume egg because of high nutrition and easy digestion¹. In addition, it can be prepared as many main dishes and desserts. Many people (farmers, distributors, and preserved egg manufacturers) can derive incomes from egg products. It can be said that egg has a relationship with people, both producers and consumers. Egg becomes an agricultural product that is important to Thai economy. Table 1.1 shows the quantity of production, consumption and export for eggs in 1998-2002.

According to Yearly Livestock Economic Information 2001, Livestock Extension Division, the duck egg in the market was over supply. The average duck egg's price was 2.19 baht per egg. According to Yearly Livestock Economic Information 2002, Livestock Extension Division, the average duck egg's price is 2.79 baht per egg, which is higher than the price in 2001, but the production cost is lower. It could be concluded that the demand for duck eggs has increased, including to the demand of duck eggs for preserving egg as salted egg and century egg has also increased. In 2002, the average consumption rate of duck egg was 32 eggs per person per year².

Most Thai people prefer having duck egg as preserved egg (salted egg and century egg) to cooking for meals like hen egg. Because a duck egg's size is bigger than a hen egg's and a duck egg's price is higher than a hen egg's, it is more suitable to add value by preserving than hen egg³.

Moreover, egg is an agricultural product that easily and rapidly spoils, the food preservation is used to extend the egg's life and add to the value of egg; preserved egg as

century egg is also a popular method. Moreover, it is a good way to solve the over-supply fresh egg problem in the market (Panya and Surachet, 1993).

Table 1.1 The quantity of productivity, consumption, export of egg in 1998-2002

Year	Productivity	Consumption	Export	
	Million (unit)	Million (unit)	Million (unit)	Million (฿)
1998	9,023	8,974	49.18	88,373
1999	8,675	8,576	99.13	159,464
2000	7,943	7,915	27.80	32,948
2001	8,713	8,624	55.55	123,862
2002	8,094	8,055	39.19	61,342

Source: Office of Agricultural Economics, 2002

¹ Office of Agricultural Economics, 1980, P.1

²⁻³ Yearly Livestock's Economic Information 2002, Livestock Extension Division,
Department of Livestock Development, p.16

1.1.1 Century egg

Century egg is a kind of preserved egg. Royal Institute Thai Dictionary, 1982 defined the meaning of century egg as followed: Century egg is an egg in an alkaline solution. Century egg's yolk is amber to black with a creamy dark green yolk. Its taste and smell are unique. It has a rather strong odor of ammonia. Its flavor is pungent and cheese-like.

Century egg is a source of nutrition as protein, fat, carbohydrate, energy, vitamins, and minerals, the same as fresh egg; however, the nutrient's quantity of century egg may be changed because of its preservation process. Table 1.1.1 shows the comparative nutrition between a fresh duck egg and a century egg. Carbohydrate and protein are increased, while others are not much decreased (Payungsak, 1999).

There are two general methods of making the century egg. The first one is the immersion method. The fresh egg is soaked in an alkaline solution about 10-12 days. Another is a coating method. The fresh duck egg is coated with lime, black tea, ashes, salt, and rice husks, and buried in shallow holes for 30-45 days (Panya and Surachet, 1993).

People eat the century egg as an appetizer, served with a dipping sauce of soy sauce, chili sauce, vinegar, rice wine, and preserved or minced ginger. It is also popular for breakfast served with congee. The century egg is a germ free food; therefore, people can have it without cooking (Ranee, 1986). Many dishes can be prepared with century egg such as fried century eggs with basil leaves and century eggs salad. (Chantana and friends, 1989).

Table 1.2 Comparative nutrition between a fresh duck egg and a century egg

Nutrition	Duck egg [1 unit]	
	Fresh egg	Century egg
Energy [unit]	188.0	181.0
Fat [gm.]	14.2	11.6
Carbohydrate [gm.]	0.7	4.2
Protein [gm.]	13.2	14.0
Calcium [mg.]	64.0	78.0
Phosphorus [mg.]	220.0	188.0
Iron [mg.]	3.6	2.9
Vitamin A [IU]	1541.0	1259.0
Vitamin B1 [mg.]	0.16	0.09
Vitamin B2 [mg.]	0.40	0.11

Source: Food Composition Table for Use in East Asia by FAO and U.S. Development of Health, Education and Welfare

However, currently, consumers are cautions about the safety of century egg. Recent headlines have been reported about food safety issue for this kind of food: “The dangerous compound in century eggs” (Thai rat, January 18, 2002). and “How to choose century eggs to be safe from lead compound” (Thai rat, March 21, 2002). Yang (1994) stated that century egg is a kind of preserved egg which is full of many nutrients; however, in making it, the manufacturers should be concerned with the health and safety of consumers. Some century egg’s production methods are found that consist of a lead compound for facilitating in the production process as well as reducing the time in the

preservation. However, this compound may be harmful to consumers (Ranee, 1986; Rujee, 1987).

The safety of century eggs in Thai markets is controlled by the Food and Drug Administration, Ministry of Public Health⁴. The century egg must be free from any microbiological hazards, which are harmful to consumers' health. It must not have the lead compound in century egg more than 2 milligram per kilogram; this amount is not harmful to consumers' health⁵.

1.1.2 Century egg industry

In Thailand, the manufacture of century egg is a small industry or family business. There is no general production rule among century egg producers. Most manufacturers have recipes for the preservation and treated them as a family secret.

The following is the list of the existing century egg brand names which are registered with Food and Drug Administration, Bangkok⁶:

- A brand (เอ)
- Heab Heng brand (เฮียบเฮง)
- Hok Lok Shew brand (ฮกลกเซว)
- Mea brand (มีอ)

⁴ <http://www2.fda.moph.go.th/consumer/food/gflst010.asp>

⁵ Ministry of Public Health declaration: century egg, Volume 236, 2001.

⁶ Food and Drug Administration, Ministry of Public Health, 2003

- Mea Ku brand (มีอคุ)
- Petch brand (เพชร)
- Phu Khao brand (ภูเข)
- Tri Petch brand (ตรีเพชร)
- Universal brand (ยูนิเวอแซล)

In general, century egg can be bought in original markets (bazaars) and supermarkets. From observation⁷, the researcher found that the century egg in Thai market is either duck egg or quail egg. The century duck egg can be divided into two types by external characteristics: pink color egg shell, and coated with mug and rice husks. For quail egg, there is only the pink color eggshell type.

According to observation, the researcher found that three ways in distributing century egg from producers to consumers⁸;

1. The manufacturer directly distributes the century egg to consumers through supermarkets.
2. The manufacturer supplies the century egg to distributors. Then, distributors through supermarkets and original markets (bazaars) will distribute it to consumers.

⁷⁻⁸ Observation from

- Seri Supermarket (Srinakarin), August 6, 2003
- Home Fresh Mart (The Mall Bangkapi), August 7, 2003
- Mahasin Market (Sukhumvit 101/1), August 6, 2003
- Top Supermarket (Central Ladprao), Carrefour Supermarket (Ram Indra Branch, and Big C Super Center (Ladprao Branch), August 7, 2003
- Bangkapi Market and Happy Land Market, August 7, 2003
- Na Korn Thai Market (Ladprao Soi 101), August 9, 2003
- Food Land Supermarket (Ladprao Branch), August 9, 2003

3. The manufacturer supplies the century egg to retailers at the original market (bazaars). Then, it will be distributed to consumers.

From observation at supermarkets⁹, the century duck egg “A brand (เอ)”, “Heab Heng brand (เฮียบเฮง)”, and “Mea brand (มีอ)” are found as 4 eggs in a package and their prices are different as shown in Table 1.3

Table 1.3 Century duck egg brand and price in supermarket

Brand	Price / Package (4 eggs)
A	30
Heab Heng	27.50, 28, 28.50, 30, 31
Mea (pink color eggshell)	30.50
Mea (coating with musk and rice husk)	29, 31

At original markets (bazaars)¹⁰, the researcher found that “Hok Lok Shew brand (ฮกลกชีว)”, “Petch brand (เพชร)” and “Heab Heng brand (เฮียบเฮง)” are available. Consumers can buy it individually at an average price of 5-6 baht.

⁹Observation from

- Seri Supermarket (Srinakarin), August 6, 2003
- Home Fresh Mart (The Mall Bangkok), August 7, 2003
- Top Supermarket (Central Ladprao), Carrefour Supermarket (Ram Indra Branch, and Big C Super Center (Ladprao Branch), August 7, 2003
- Food Land Supermarket (Ladprao Branch), August 9, 2003

¹⁰Observation from

- Mahasin Market (Sukhumvit 101/1), August 6, 2003
- Bangkok Market and Happy Land Market, August 7, 2003
- Na Korn Thai Market (Ladprao Soi 101), August 9, 2003

1.2 Statement of the Problem

Understanding consumers' purchase intention for century egg would be beneficial for manufacturers and marketers. There has been no previous research about this product in marketing field. Therefore, this research attempts to examine **“What are the factors associated with purchase intention for century egg?”**

1.3 Research Objectives

1.3.1 To examine relationship between consumers' concerns about food safety with purchase intention of century egg.

1.3.2 To determine relationship between product attributes of century egg and purchase intention of consumers.

1.4 Limitations of the Research

1.4.1 The present research is conducted on respondents located only in some areas in Bangkok; therefore its result may not be generalized for assessing purchase intention for century egg of consumers in other regions in Thailand.

1.4.2 The present research is conducted in a specific time period; therefore, its findings may not be generalized for all times to come.

1.4.3 The present research focuses on examining the relationship between the perception about food safety concerns and the perception about importance of product attributes, and purchase intention for century egg of Bangkok consumers. Therefore, its findings may not be generalized for other food products.

1.5 Scope of the Research

1.5.1 This research aims to examine the factors related to century egg purchase intention. The conceptual framework consists of independent and dependent variables. The independent variables are the perception about food safety concerns; chemical and microbiological hazards, and the perception about importance of product attributes of century egg; appearance, availability, nutrition, price, quality, and usage. Purchase intention for century egg is the dependent variable of this study.

1.5.2 Century egg in Thai market is made from two kinds of eggs: duck egg and quail egg. Because of time limitation, this research aims to concentrate on century duck egg.

1.5.3 Century duck egg, which is sold in the market place, is divided into two types by external characteristics: pink color eggshell, and coating with mug and rice husks. Because most manufacturers produce the pink color eggshell type¹¹, this study aims to study only this type of century egg.

1.5.4 This research only aims to study the intention to purchase of ended consumers in Bangkok area with intent to purchase century egg for consuming by themselves.

1.6 Significance of the Study

Although the manufacture of century egg is a small industry, people widely do this business as the main source of income or second income. This research attempts to study factors associated with the purchase intention for century egg.

¹¹<http://www2.fda.moph.go.th/consumer/conframe.asp>

The result of this research will be beneficial to manufacturers and marketers in the preserved egg industry; especially in the century egg industry. In addition, it has a benefit for people who are interested in this type of business. It can help them understand the perception of consumers toward century egg in order to develop the product to satisfy consumers. Furthermore, this study will help manufacturers and marketers understand consumers' purchase intention for century egg in order to generate the suitable marketing plans and strategies for their products.

1.7 Definition of Terms

Century egg: an egg in the alkaline solution (Royal Institute Thai Dictionary, 1982). The century egg was found in China several hundred years ago. Chinese people name this kind of preserved egg "Pidan". Excluding the name "century egg", there are several English language names of this kind of preserved egg such as alkalized, one-hundred-year-old, Ming dynasty, and Chinese preserved egg (Payungsak, 1999).

Food safety: one of the most important issues facing primary producers, marketers and governments. Consumers concerned about the safety of the food they eat has been increasing, highlighted by a number of "food scares" in recent years (Smith and Riethmuller, 2000).

Perception: the process by which an individual selects, organizes, and interprets information inputs to create a meaningful picture of the world (Kotler, 2000).

Product attributes: components or characteristics of the product (Murphy; Cowan; Henschion; O'Reilly, 2000).

Product availability: the difficulty / easiness in finding or purchasing products at regular market places. (Magnusson; Arvola; Koivisto Hursti; Aberg; Sjoden, 2001).

Purchase intention: Consumer's likelihood of purchasing the product (Dodds, Monroe, and Grewal 1991).



CHAPTER II

LITERATURE REVIEW

In this chapter, all literature used in building up the conceptual framework of this study will be reviewed. The conceptual framework of this study is mainly developed from relevant theories explained in the first section. Section two will be previous empirical research, which is supportive of the framework.

2.1 Relevant Theories

Theory and model

A theory can be defined as an interrelated set of statement of relationships whose purpose is to explain. Theories are grounded in facts that and supported by laws and other well-supported statements of relationships.

A model is defined as any highly formalized representation of a theoretical network, usually designed through the use of symbols or other such physical analogues. Model is used as representations of theoretical systems so that they can be tested, examined, and generally analyzed by those who create them (Davis and Cosenza, 1988).

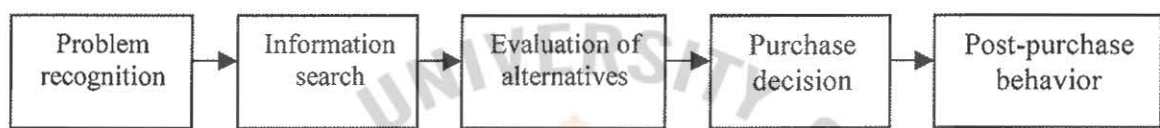
2.1.1 Consumer decision process

Since the purpose of the research is to study the purchase intention for century egg, the theory of consumer decision process is selected to explain the purchase intention.

A consumer decision is a response to a problem (Solomon, 1991). Consumer decision process can be characterized as a form of customers' problem solving process.

This process entails a sequence of activities to the solution of the perceived problem (Hanna and Wozniak, 2001). Consumer decision process theory stated that consumers pass through five stages: problem recognition, information search, evaluation of alternatives, purchase decision, and post-purchase behavior (see figure 2.1). The consumers pass sequentially through all five stages in buying a produce. But this is not the case: consumers may skip or reverse some stages (Kotler, 2000).

Figure 2.1 Five-stage model of the consumer buying process



Source: Kotler (2000), *"Marketing Management"*, the millennium edition, Prentice Hall, P.179

Problem recognition

Skinner (1994) mentioned that the consumer decision-making process begins with when a buyer recognized a problem or an unsatisfied need or desire. Kotler (2000) stated that the buying process starts when the buyer recognizes a problem or need. The need can be triggered by internal stimuli (such as hunger, thirst, and sex) or external stimuli (for instance, a person passes a bakery and sees freshly baked bread that stimulates her hunger).

Information search

Schiffman and Kanuk (1997) mentioned that information search begins when a consumer perceived a need that might be satisfied by the purchase and consumption of a product. A consumer who senses a need for information on which to base a choice in this

stage. Kotler (2000) stated that consumer information sources fall into four groups, which are personal sources, commercial sources, public sources, and experience sources. The relative amount and influence of these information sources vary with the product category and the buyer's characteristics. Each information source performs a different function in influencing the buying decision.

Hanna and Wozniak (2001) mentioned that problem recognition is followed by search activity. The objective of search activity is to identify and familiarize oneself with the course of action available to solve the perceived problem. Information search can be internal, and external, or a combination. Internal search is the mental activity of retrieving information that has been stored in long-term memory and deals with products or services that can help an individual solve a problem. External search seeks out new information through a variety of avenues that may include market-oriented sources, such as advertising, promotional material, and packaging, and interpersonal sources, such as visit to stores, talk with salespeople and person and e-mail or communication via electronic media.

Evaluation of alternatives

Engel et.al (1993) stated that alternative evaluation represents the buying process in which consumers evaluate alternatives to make a choice. There are several decision evaluation processes, the most current models of which see the process as cognitively oriented. That is, they see the consumers as forming judgments largely on a conscious and rational basis. Some basic concepts will help the researcher to understand consumer evaluation processes. First, the consumer is trying to satisfy a need. Second, the consumer is looking for certain benefits from the product solution. Third, the consumer

sees each product as a bundle of attributes with varying abilities of delivering the benefits sought to satisfy this need.

Purchase decision

In the evaluation of alternative stage, the consumers are comparing and forming preferences among the brand (or product) in the choice set. After that consumers are not making a purchase decision immediately. Before making a purchase decision, the consumer may also form an intention to buy the most preferred brand.

Purchase intention

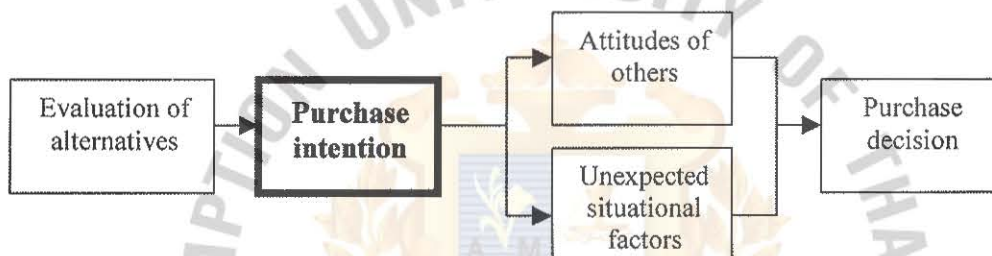
Purchase intention, or willingness to buy, has been defined as the consumer's likelihood of purchasing the product (Dodds, Monroe, and Grewal 1991). Purchase intention is the likelihood that the consumer intends to purchase the product (Grewal, Monroe, and Krishnan 1998). Purchase intention has been widely used in the literature as a predictor of subsequent purchase. (Nevin and Houston, 1980). Li; Daugherty; Biocca (2002) stated that purchase intention is a common effectiveness measure and often used to anticipate a response behavior. Dodds and Monroe (1985) suggest that willingness to buy or purchase intention is a behavioral tendency that the consumer will purchase the product. Prior research predominantly has used purchase intention (e.g., Barnes 1975; Keiser and Krum 1976) rather than actual choice (cf. Moore and Olshavsky 1989; Varadarajan 1986).

Preferences and even purchase intentions do not always result in actual purchase choice. They may direct purchase behavior, but may not fully determine the outcome. Two factors, shown in figure 2.1.2 can come between the purchase intention and

purchase decision. The first factor is the attitudes of others that may reduce customer's preferences on the selected products. The second factor is the unexpected situational factors, for example a person might lose her job or some other purchase might become more urgent (Kotler, 2000). Therefore, a person makes a purchase decision after he/she forms an intention to purchase and passes through the two intervened factors (attitudes of others and unexpected situational factors).

This study will concentrate on the “purchase intention” process.

Figure 2.2 Steps between evaluation of alternatives and purchase decision



Source: Kotler (2000), *Marketing management*, the millennium edition, Prentice Hall, P. 182

Post-purchase behavior

After buying and trying the products, a consumer will experience some level of satisfaction. If the product meets his expectations, the consumer is satisfied; if it exceeds them, the consumer is highly satisfied, but if it falls short, the consumer is dissatisfied. Consumers form their expectation on the basis of messages and claims sent out by the seller and other communication sources. The amount of dissatisfaction depends on the size of the difference between expectation and performance (Kotler, 2000).

2.1.2 Perception

Perception is the process of selecting, organizing, and interpreting sensation into a meaningful whole. Perception is highly subjective and therefore easily distorted. Not only may different people perceive the same stimuli differently, but the same person may perceive a given item differently at various times or under different circumstances. Consumer perceptions are vital to marketers and often underlie the success or the failure of the products in the market place (Hanna and Wozniak, 2001).

Perception depends not only on the physical stimuli but also on the stimuli's relation to the surrounding field and on conditions within the individual. People can emerge with different perceptions of the same object because of three perceptual processes: selective attention, selective distortion, and selective retention (Kotler, 2000).

Selective attention is the tendency for people to screen out most of the information to which they are exposed.

Selective distortion is the tendency of people to interpret information in a way that will support what they already believe.

Selective retention is the tendency of people to retain information that supports their attitudes and beliefs.

Perception of a food product has been shown to be affected by many individual factors. These factors include information from labeling and images, attitudes, memory from previous experience, price, prestige, nutritional content, product attribute, health belief, familiarity and brand loyalty (Kronidl and Lau, 1982; Raats et al., 1995; Shepherd, 1995).

In this study, the perception of food safety concerns and perceived importance of product attributes are examined. The detail of these concepts can be explained as followed:

2.1.3 Food safety

Henson and Traill (1993) defined food safety as the probability of not suffering some hazard from consuming the food. Anderson (1991) stated that food safety issues relate to illness or death caused by consumption of a contaminated food product. The large number of diseases caused by bad nutrition, and the care about slimness and fitness, have led people to pay more attention to what they eat. Consumers want to be confident that food is safe, nutritious, without additives and that it has high standards of quality (Mitsostergios and Skiadas, 1994).

Christopher and Li (1998) stated that food safety is viewed as a consumption attribute, and then much the same reaction will apply to other aspects of consumer behavior. If we take a broad interpretation of food safety, as in the Food Standards Agency proposal, to include nutritional quality of the diet and concerns about novel foods, as well as chemical and microbiological safety then what binds these characteristics together from an economics perspective is that they all reflect a potentially adverse impact on an individual as a consequence of the consumption of food.

The consumer of today places increased importance on the safety of food. Consumers who are concerned about food safety are frequently concerned with a number of specific issues to do with food production and handling. These issues affect consumer perceptions of the product in question and can affect future purchase and consumption decisions and the reputation of the retailer and producer. (Smith and Riethmuller, 2000).

Hobbs (1998) mentioned that food safety is becoming an important issue, both for consumers in the domestic market and in major export markets.

Food safety is one of the most important issues facing primary producers, marketers and governments in the 1990s. Consumer concern about the safety of the food they eat has been increasing, highlighted by a number of "food scares" in recent years. Examples of these include the recent publicity surrounding "mad cow disease" in the UK, the Arnotts Biscuits poisoning, contaminated ham products in Victoria, the Garibaldi Smallgoods contamination scare, Australian peanut paste products affected by salmonella bacteria and the Jack in the Box contaminated beef incident in the USA. The issue has been elevated to the popular media, with perhaps one of the more controversial cases involving the US talk show host Oprah Winfrey. In 1996, her talk show aired a program about food safety that US cattlemen argued has led to a decline in beef consumption. Court action in the case is currently proceeding (Queensland Country Life, 1998).

Specific issues of concern to consumers about food safety include bacteriological contamination, chemical residues, food irradiation and the use of antibiotics. Although some of these factors pose very little actual risk to the community, it is the perceived risks that affect consumers' buying habits. Consumers' demand for fresh, healthy food is increasing around the world. For example 75 percent of the Japanese consumers and 84 percent of the Australian consumers surveyed for this paper either agreed or strongly agreed that it is better to buy food fresh rather than frozen.

Although specific concerns vary from country to country, it is clear that food safety is becoming an issue of importance to consumers when making purchase decisions. According to Kramer (1990), consumer activism has forced policy change in a

number of areas important to the agricultural and food industries. Kramer also argues that consumer concerns can translate into market behavior, frequently in volatile ways. It is also clear that concern over food safety can have an effect on future consumption levels.

Food safety concerns

The analysis of risk concerning with food safety can begin with the identification of food hazards. A hazard is an event or occurrence associated with an activity or process, which can result in negative consequences and thereby provide a source of risk to a receiving environment or population. Hazards associated with the consumption of food can be classified into sources of risk, namely, microbiological, chemical and technological hazards (Yeung and Morris , 2001).

Microbiological hazards

Microbiological hazards include all hazards caused by bacteria. These are living microorganisms, which can cause food spoilage and possibly food poisoning for the consumer. These can be harmful to health directly or indirectly. The incidences of food poisoning in England and Wales rose from below 14,000 cases in 1985 to over 93,000 in 1998 (Trickett, 1997; Miles et al., 1999). The vast majority of reported food poisoning cases within the UK are bacterial. The common food poisoning bacteria are Salmonella, Campylobacter coli, Listeria monocytogenes, and Escherichia coli (FSAC, 1993). The first two of these are commonly found in chicken meat.

Salmonella is commonly found in association with raw meat (FSAC, 1993). Trickett (1997) reports that the majority of chickens and many other farm animals carry Salmonella in their intestines due to the frequently contaminated animal feed and

intensive rearing methods. It has been reported that major supermarkets have found that up to one in ten chickens has been infected by Salmonella (Meikle, 1999). Mintel (1997) stated that Salmonella could be found in eggs. It can be harmful to consumers' health.

Phillips (1995) suggests that *Campylobacter coli* is the most common cause of diarrhoea in the UK associated with eating food contaminated with living bacteria. The presence of *Campylobacter* spp. in chicken possibly poses the greatest health risk in case of undercooking (IFST, 1995). Previous studies show that between 30 and 100 per cent of broilers at the point of retail sale have been contaminated on the surface with *Campylobacter* spp. (Phillips, 1995).

Chemical hazards

Chemical hazards are associated with the use of chemical additives, processes and controls in the agricultural and food industries. Chemical usage includes the use of agri-chemicals, growth control hormone, feed conversion enhancers and anti-biotic treatments to increase or protect market yield and/or quality of crop and livestock products. Chemicals may be widely used in the processing and distribution stages of the food supply chain to provide or preserve specific product features. Unwanted chemical residues may arise due to inappropriate use or management, in some cases due to operations carried out in a generally polluted environment.

Food products may purposely or unintentionally contain chemical elements. Unintentional elements are likely to be unwanted residues from production processes, including those which might arise from production carried out in conditions of general environmental pollution. Although the uses of both pesticide and the antibiotic are regulated in the UK by the Ministry of Agriculture, Fisheries and Food (MAFF), concern

about high levels of chemical use and the implications for consumer health has led to the inclusion of chemical related risks in the concept of food safety (Wandel, 1994; Collins and Oddy, 1999; Pretty, 1998; Meikle and Brown, 1999; Smith and Riethmuller, 1999).

There is, for example, concern that the use of growth-promoters in broiler chickens may reduce the effectiveness of antibiotics when used to treat human life threatening conditions among a population previously exposed to residual antibiotic dosage through the consumption of chicken meat (McKellar, 1999).

Technological hazards

Technological hazards refer to the possible negative consequences of technological advancements in food products, such as food irradiation and genetic modification of food. In general, technology has contributed multiple benefits in terms of food safety and increased food availability. But it is not unusual for the public to show their concern about new technologies. Clarke and Moran (1995) cite that technological advancements are usually controversial and it is difficult to predict how consumers will accept them.

2.1.4 Product attributes

Product attributes are those features of a product meeting consumer needs. The consumer received information on product attributes during shopping and consuming (Becker, 2000). Schewe and Smith (1980); Russ and Kirkpatrice (1982) mentioned that product is a bundle of features, characteristics, or attributes that satisfy buyers' needs. All these attributes influence purchasing decision. Lamps, Hair, and McDaniel

(1993) explained that a product might be defined as everything, both favorable and unfavorable, that a person receives in an exchange.

Product attributes play a significant role in determining how consumers evaluate products (Deighton 1997; Klein 1998; Smith 1993; Smith and Swinyard 1982; Wright and Lynch 1995), and different product classifications have been conceptualized on the basis of product attributes. Mason and Kevin (1995) stated that consumers may have schema regarding the relationships between product attributes (e.g., price and quality). These products attribute schemata or judgments may in turn impact consumers' product evaluations.

Proponents of benefit segmentation (e.g. Haley, 1968) have stressed the importance of product attributes in the persuasion process. Hughes (1971) claims that the consumer associates many attributes with a particular product or brand. His or her overall attitude towards a brand is a function of the importance he or she attaches to each attribute as well as his/her belief about the probability that those attributes exist in that brand. It follows that attributes perceived to be present in a product influence one's purchase decision.

Product attributes (Kupiec and Revell, 2001) as perceived by consumers are critical factors in the food choice process. Hence, it is not surprising that focus on the subjective entity of a product as perceived by the consumer (and, indeed, a moulding of consumer perceptions) is a major determinant of the success of many product marketing strategies.

As discussed in the information economics literature (Nelson, 1970; Darby and Karni, 1973; Anderson, 1994) product attributes can be categorized as “search”,

"experience" or "credence" attributes. Search attributes can be ascertained prior to purchase; experience attributes cannot be ascertained prior to purchase, but can be detected during consumption and credence attributes cannot be ascertained prior to purchase or during consumption. Steenkamp (1989) summarises the difference between experience and credence attributes thus: "Experience attributes can be ascertained on the basis of the actual experience of the product, whereas credence attributes cannot be ascertained even after normal use for a long time". Again, Nelson (1976, 1981) made distinctions between search and experience products, which he subsequently refined as search and experience attributes because a product can have both types of attributes. Search attributes are those features of a product that consumers can assess without actual use of the product, such as size, color, and price. Experience attributes are those that consumers can assess only through actual use or direct contact, such as taste, softness, or fit.

The distinction developed in the USA (Nelson, 1970; 1974) between "search", "experience" and "credence" goods in defining food product attributes. For search attributes, the consumer can determine a product's quality before buying it. For experience attributes consumers cannot determine a product's quality until after they have purchased it ("red apples taste nice"). For credence goods consumers cannot determine the product's quality even after consuming it ("red apples cause heart disease") and must rely on other information.

Northen (2000) stated that product attributes may be split into sub-sets, including food safety, nutrition, sensory, functional and image attributes, where functional attributes include factors such as "convenience of preparation" - relating to physical

product characteristics, and "image attributes" are desired by the consumer but may, or may not, have any connection to the production process or physical product.

Appearance

The first taste is almost always with the eye. Visual sensations have been known to contribute to perception since the first encounter with a food product is often visual. Appearance can function as a screening mechanism before closer examination and purchase. Consumers have exhibited strong preference for products with appealing appearance (Imram and Binte, 1999).

The first bite is almost always with the eye. Appearance properties provide the first impression encountered by consumers (Hutchings, 1994), which may subsequently affect their purchase decision especially in circumstances where the food product can be seen, rather than only the packaging.

The appearance of a product, i.e., the exterior look (form, color and texture), influences consumer product choice. The appearance of a product can be the basis for product choice itself, while in addition consumers often make inferences about several attributes of the product on the basis of the product appearance (Creusen and Hubertina, 1998).

Jinkinson (1999) said that all theories state the important of color. Color is very important to perception of food quality. Correct color of food stuff assists in flavor perception and even identification. Color is one way we determine whether we want to eat food.

Availability

Product availability is the product available in the food store where consumers do their main food shopping (Magnusson; Arvola; Koivisto Hursti; Aberg; Sjoden, 2001). Availability may influence the consumer's decision. For instance, if the consumer's first choice was not available in the retail outlet, she/he would probably consider the second choice (Murphy, Cowan, Henchion, and O'Reilly, 2000).

Nutrition

Food contains a variety of nutrients which are essential if our bodies are to function effectively. Nutrients are required to perform a particular role(s) in the body including growth and repair, heat and energy and protection from disease. It is important that the food we eat provides a combination of nutrients (Shine; O'Reilly; O'Sullivan, 1997). Shepherd and Towler 1992; Tuorila 1987; Tuorila and Pangborn (1988) stated that perceptions about attributes of foods, such as importance of nutrition, appear to be good predictors of dietary behavior.

General choice theories, recent policy emphases, and nutrition surveys concur that consumers' judgments of overall nutrition and purchase intentions will be based more on evaluations of unfavorable nutrients; e.g., fat, cholesterol and sodium than on favorable nutrients; e.g., protein and fiber (Burton; Garreston; Velliquette, 1999).

Price

Hawkins, Best and Coney (2001) stated that price is the amount of money one must pay to obtain the right to use the product. Kotler (2000) mentioned that prices refer to the perceived value of goods and service measured in some medium of exchange. Consumers use price as an indicator of product quality because they believe that market

prices are determined by the forces of competitive supply and demand (Grewal; Krishnan; Baker, 1998). Gabor and Granger (1966) mentioned that price as a product attribute is often signifier of quality. Zikmund and Amico (1996) also stated that the amount of money, or some goods or services, given in exchange for something is its price. In the other word, price is what is exchanged for product. Marketers must determine the best price for the products. Quester; Smart (1998) emphasized that price is often the most important attribute evaluated by consumers.

Quality

Quality is a term with a meaning depending on the background of the person using this term. The term quality is very ambiguous, if not contradictory, when used by different persons or even by the same person in different instances (Becker, 2000). The International Organization of Standardization (ISO) supplies with the most popular and probably the only definition on food quality agreed on by almost all people coming from different backgrounds and working in this area, in politics, industry or sciences, defining quality as: "the totality of features and characteristics of a product or service that bear on its ability to satisfy stated or implied needs" (ISO 8402). The total quality management literature does not provide a more detailed definition: quality is, according to Crosby, the "conformance to requirements", or quality, as defined by Juran, is "fitness for purpose" (Juran, 1979). Rather similar is the German Association for Quality: "Quality is the entirety of features and characteristics of a product, which refers to the fitness to fulfill given needs" (Deutsche Gesellschaft fur Qualitat, 1980).

Kupiec and Revell (2001) defines a "quality attribute" as a product feature (tangible or intangible) which influences quality directly upon consumption and a

"quality cue" is a product feature influencing consumers' expectations of product performance. An intrinsic quality cue is a physical attribute of a product that influences consumer perceptions of a product's quality. Extrinsic quality cues are not a physical part of a product. Both types of cues influence quality expectation in relation to a product prior to consumption. Quality attributes, on the other hand, influence perceptions of product upon consumption.

Perceived quality is defined as the consumer's judgment about the extent of superiority or excellence of the product (Zeithaml, 1988). This is a user-based approach as suggested in Garvin (1983). It is widely believed that consumers use cues to infer quality (Zeithaml, 1988; Olshavsky, 1985). These cues typically are classified as intrinsic or extrinsic (Olson and Jacoby, 1972). Intrinsic cues involve the physical composition of the product (for example, flavor and color in beverages) while extrinsic cues include other, generally controllable, aspects (for example, price and brand name).

Gerhardy (1996) stated that food quality is a rather complex issue. The approach towards food quality inherent in the natural sciences is based on the measurability of quality characteristics. These measurable features of a food product will be denoted as product characteristics. Product characteristics are those features of a product which are used as (technical) indicators for product quality and are (in principle) measurable with (standardized) analytical (including sensoric) methods.

In the food science literature on food quality (Ernst, 1995), four categories of product characteristics are established: (1) characteristics indicating the nutritional value: protein, fat, carbohydrate content, ash content, digestibility etc; (2) characteristics indicating the processing quality: share-force, sarcomere length, pH-value, colour,

fatness, water-binding capacity etc; (3) characteristics indicating the hygienic-toxicological quality: residues, contaminants, microbacterial status, additives etc.; and (4) characteristics indicating the sensoric quality: texture (tenderness, juiciness), flavour/odour, and colour or appearance (marbling) etc.

Steenkamp (1989) suggests a model of the quality perception process, which is rather similar to the consumer attribute model. This process starts with the acquisition and categorization of cues, intrinsic (e.g. appearance, color, shape, presentation) or extrinsic (e.g. price, brand name, stamp of quality, country of origin, store, production information and nutritional information) to the product. Two types of quality attributes are distinguished, experience quality attributes, such as convenience, freshness and sensory characteristics that can be experienced at the time of consumption, and credence quality attributes, such as healthiness, naturalness and wholesomeness that cannot be experienced directly. Finally, the overall quality evaluation is hypothesized to be based upon the perceptions of the product with regard to the quality attributes.

The model of Steenkamp (1989) is based on a model by Olson (1972). According to Steenkamp, the model of Olson conceptualized the formation of quality perceptions as a two-stage process. First, consumers choose cues of product quality from an array of product-related cues. Second, consumers integrate their evaluations of these individual cues into an overall judgment of product quality.

Usage

A consumer's intention to purchase depends on the degree to which the product meets or satisfies the circumstances of its use (Lai, 1991). Consequently, the particular circumstances in which a consumer expects to use a product may influence his/her price

sensitivity. In some cases, usage can be an important determinant of consumer behavior. In the case of snack food; for example, 18.7 per cent of the variance in consumer purchase decisions was contributed by the planned use of the product - one of the highest shares in the set of investigated determinants (Belk, 1977). Jack et al. (1994) studied a range of uses for different Cheddar cheeses. They found that the main discriminatory factor for cheese consumption was the perceived quality relative to a specific use. Usage is therefore a product attribute.

Belk (1977); Chow et al. (1990); Lai (1991) suggested that consumers' intention to purchase depends on the degree to which they associate the product characteristics with their anticipated consumption situation.

2.2 Previous Empirical Research

Previous empirical research relevant to perceived food safety concerns and perceived importance of product attributes are as followed;

Food safety concerns

O'Donovan and McCarthy (2002) studied Irish consumer preference for organic meat. They found that there was a significant relationship between perceived concerns about food safety and purchase intention for organic meat.

Yeung and Moris (2001) stated that recent research shows that risk perception for foods (chemical hazards, microbiological hazards, and technological hazards) and purchase behavior are causally linked: the former is an important explanatory variable for the latter.

Huang (1993); Eom (1994)'s research highlighted the importance of the subjective nature of risk perceptions in purchase behavior, providing evidence of a negative relationship between risk perception and purchase.

Product attributes

Kupiec and Revell (2001) mentioned that product attributes as perceived by consumers are critical factors in the food choice process.

O'Donovan and McCarthy (2002)'s research showed that perceived importance of product attributes as food safety, production methods, quality, appearance, and cost was related to purchase and purchase intention for organic meat. It also showed that the price and availability were the key deterrents to the purchase and purchase intention for organic meat.

Imram and Binte (2000) investigated the effects of color and appearance in chilled dairy dessert products on consumer perception, liking and final purchase intention, as well as the effects of sensory claims, which can be complementary or otherwise to the nature of the product. These aspects were studied based on the Total Food Quality model. The physical properties of the chilled dairy dessert were manipulated and resulted in a wide range of variation in visual attributes. A visual profile panel was established for the profiling of the dessert formulations. The formulated products exhibited a detectable variation in several colour and appearance parameters. Thus, the visual profile panel was able to identify cues that were involved in the consumer perception of chilled dairy dessert products. The consumer study revealed that for these products, colour and appearance features prior to purchase were rated more important than other extrinsic factors by the majority.

Creusen and Hubertina (1999) gives insight into the ways in which the appearance of a product, i.e., the exterior look (form, colour and texture), influences consumer product choice. The appearance of a product can be the basis for product choice itself, while in addition consumers often make inferences about several attributes of the product on the basis of the product appearance.

Burton, Garreston, and Velliquette (1999)'s research evaluated the relationship between favorable nutrients and unfavorable nutrients, and overall product nutrition perceptions and purchase intention for food products. Result showed that both favorable nutrients (i.e., protein and fiber) and unfavorable nutrients (i.e., fat, saturated fat, and sodium) are significant. Positive predictors of overall product nutrition perceptions and purchase intentions but that the unfavorable nutrients will have a stronger effect.

Bower, Saadat, and Whitten (2003) studied the purchase intention and willingness to pay more for a fat spread with a proven health benefit. They found that main reasons for "buying" and "not buying" the spread with the proven health benefit were "healthy" and "high price", respectively. Consumers were willing to pay more for the new spread but at a level below its current retail price.

Grewal, Krishnan, and Baker (1998) stated that past researches (Dodds, Monroe, and Grewal, 1991; Grewal, Monroe, and Krishnan, 1998) have found that purchase intention is positively associated with perceived value of products.

Lai (1991) stated that the consumer's intention to purchase depends on the degree to which the product meets or satisfies the circumstances of its use.

Local previous studies

Wanlee (2000) studied on factors affecting to purchasing decision on Tabtim fish of Bangkok buyers. The purposes of this study were to study the factors determining consumption behavior of buyers. Result of the study would be guideline for Pla Tabtim market development. Logic model was employed using data from interviewing buyers in Bangkok. The model consisted of sets of 4 equations, the experience, the perception, the preference and the choice. The results of analysis on the experience as measured from the purchasing frequency of Pla Tabtim buyers. It was found that who are married buyers who received information about Pla Tabtim would have experience in buying Pla Tabtim was 0.7394 and 0.2836: Buyers who spent more time in traveling to the store had a lower probability in experiencing Pla Tabtim by 0.4955. For the perception, there are 4 significant factors taste, health, color and size of Pla Tabtim. Preference for Pla Tabtim was measured from being the one in five popular fish that buyers choose. It was found that the buyers who had experience in Pla Tabtim and who received the negative information about Pla Tabtim would have a probability of 0.9329 and 0.1493 for preference in Pla Tabtim. Factors affecting the choice of purchasing decision on Pla Tabtim were preference in knowledge on Pla Tabtim being cultured, variety (usage) of Pla Tabtim, spending less time to go to the market and buyers education. These buyers would have a probability of 0.9643, 0.8636, 0.7999, 0.4939 and 0.4440 in buying Pla Tabtim.

Puntip (2000)'s research predicted factors on chili paste purchase: a selective study on Bangkok consumers. This research aims at investigating the factors being the indicator of Thai consumers purchasing Chili Paste in Bangkok areas. The research objectives encompass: - To explore what particular factors are likely related to chili paste

purchase decision of Bangkok consumers. - To determine what actual product factors can be predictive to chili paste purchase decision of Bangkok consumers. - To determine what in-store stimuli factors can be predictive to chili paste purchase decision of Bangkok consumers. The independent variables consist of two major factors, which are actual product and in store stimuli. The first main independent variable, which is actual product, consists of product attribute, branding, packaging, and labeling. In-store stimuli, the second main independent variable, consist of point-of-purchase display, price reduction, promotional deals, and store layout. Bivariate correlation is used to test the association between each independent factors and purchase decision. And multiple linear regression is used for testing the relationship between the group of independent variable and purchase decision. Results from the test of 10 hypotheses confirm that 9 out of 10 are said to bear association between pairs of independent and dependent variables. Only 1 out of 10 hypotheses does not show the statistical significance. The objectives of the study are, so far, achieved in the light of two key findings can be concluded as follows: 1. The actual product factors that are associated with purchasing of Chili Paste consist of: - Product attribute - Branding - Packaging 2. In-store stimuli factors that are associated with Thai consumer purchasing of Chili paste consist of: - Point-of-purchase display - Price reduction - Promotional deal - Store layout

CHAPTER III

RESEARCH FRAMEWORK

In this chapter, the researcher will discuss the framework of this study. The diagram of framework is discussed in Section One. Section Two explains the definition of the variables. Section Three will examine the hypothesis of this study. The last section will provide information about concepts and variables operationalization.

3.1 Conceptual Framework

Concepts are the basic building blocks of scientific investigation. They are creations of the human mind that are used in the classification and communication of the essence of some set of observations. Concept can be defined as an abstract idea generalized from particular facts. Concept can be directly tied to observable facts.

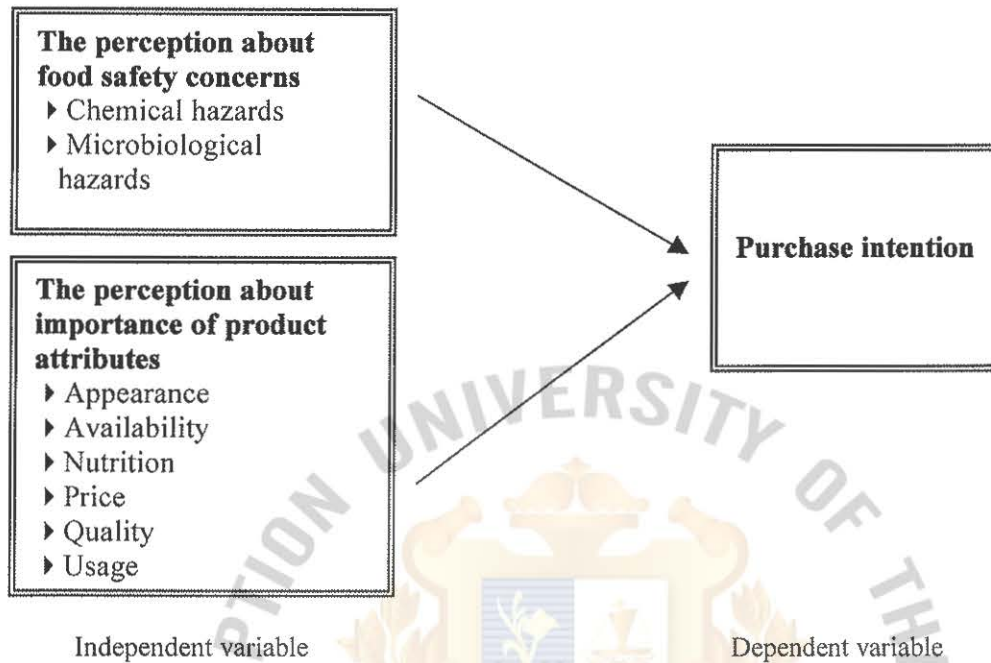
A variable is simply a symbol or a concept that can assume any one of a set of values. The concept of variable is extremely important in measurement because it sets the limits on the range of values a measurement may take (Davis and Cosenza, 1988).

An independent variable is a presumed cause of the dependent variable, the presumed effect. The independent variable produces a change in the dependent variable. The independent variable is the one (or many if we are talking about multivariate model) which the researcher believes precedes and affects the dependent variable. In the other words, the changes in the dependent variable are usually what we try to predict, understand, or explain with the dependent variable (Davis and Cosenza, 1988).

The conceptual framework of this research as shown in figure 3.1 is developed to examine the factor related with purchase intention for century egg. Adopting theories

relate to marketing, consumer behavior and other relevant studies develop this framework.

Figure 3.1 The conceptual framework



There are many factors associating with the purchase intention for products. For food products, based on previous research, the consumers' perceptions about food safety concerns and the perception about importance of product attributes are the important factors relating to the purchase intention. Hence, this research conceptual framework is built to examine the purchase intention of consumers for century egg by these two these two factors.

According to the research's conceptual framework (shown as figure 3.1), the independent variables consist of two major factors, which are the perception about food safety concerns and the perception about importance of product attributes. The perceptions about concerns about food safety have two sub variables: chemical and microbiological hazards. The perception about importance of product attributes, the

second independent variable, consists of six sub variables: appearance, availability, nutrition, price, quality, and usage.

The dependent variable of this study is the purchase intention or willing to pay for century egg.

3.2 Research Hypothesis

A hypothesis is an unproven proposition or supposition that tentatively explains certain facts or phenomena (Zikmund, 1991). Hypotheses are conjectural statements of the relationship between two or more variables that carry clear implications for testing the stated relations (Davis, 1996). They are research tools to further define research problems.

In this research, two main groups of independent variables; the perception about food safety concerns and the perception about importance of product attributes, are hypothesized against dependent variable; purchase intention. These consist of:

Group A: The perception about food safety concerns

H1_o: The perception about chemical hazard is not related to purchase intention for century egg.

H1_a: The perception about chemical hazard is related to purchase intention for century egg.

H2_o: The perception about microbiological hazard is not related to purchase intention for century egg.

H2_a: The perception about microbiological hazard is related to purchase intention for century egg.

Group B: The perception about importance of product attributes

- H3_o: The perception about importance of appearance is not related to purchase intention for century egg.
- H3_a: The perception about importance of appearance is related to purchase intention for century egg.
- H4_o: The perception about importance of availability is not related to purchase intention for century egg.
- H4_a: The perception about importance of availability is related to purchase intention for century egg.
- H5_o: The perception about importance of nutrition is not related to purchase intention for century egg.
- H5_a: The perception about importance of nutrition is related to purchase intention for century egg.
- H6_o: The perception about importance of price is not related to purchase intention for century egg.
- H6_a: The perception about importance of price is related to purchase intention for century egg.
- H7_o: The perception about importance of quality is not related to purchase intention for century egg.
- H7_a: The perception about importance of quality is related to purchase intention for century egg.

H8_o: The perception about importance of usage is not related to purchase intention for century egg.

H8_a: The perception about importance of usage is related to purchase intention for century egg.

3.3 Concepts and Variable Operationalization

A concept is a generalized idea about a class of objects, attributes, occurrences, or process. Conceptual definition is a verbal explanation of the meaning of a concept. It defines what the concept is and what it is not. Concepts must be made operational in order to be measured. An operational definition gives meaning to a concept by specifying the activities or operations necessary to measure it. The operational definition specifies what the researcher must do to measure the concept under investigation. Operational definitions help the researcher to specify the rule for assigning numbers. The values assigned in the measuring process can be manipulated according to certain mathematical rules (Zikmund, 1991). The operational definitions of variables are shown as Table 3.2.

Table 3.1 Operational definition of variables

Variable	Definition	Operational Component	Measurement
Purchase intention	Consumer's likelihood of purchasing the product (Dodds, Monroe, and Grewal 1991).	• Intention to purchase the product.	Ordinal

Table 3.2 Operational definition of variables (cont'd.)

Variable	Definition	Operational Component	Measurement
<i>The Perception about food safety concerns</i> <ul style="list-style-type: none"> Chemical hazards 	All hazards caused by using chemical additives, processes and controls in the food industries (Yeung and Morris, 2001).	The perception about chemical hazards.	Ordinal
<i>The perception about food safety concerns</i> <ul style="list-style-type: none"> Microbiological hazards 	All hazards caused by bacteria which can cause food spoilage and possibly food poisoning for the consumer (Yeung and Morris, 2001).	The perception about microbiological hazards.	Ordinal
<i>The perception about importance of product attributes</i> <ul style="list-style-type: none"> Appearance 	The outward form of something (Oxford Advanced Learners Dictionary, P.47).	The perception about importance of pink color of eggshell.	ordinal

Table 3.2 Operational definition of variables (cont'd.)

Variable	Definition	Operational Component	Measurement
<i>The perception about importance of product attributes</i> <ul style="list-style-type: none"> • Availability 	The difficulty or easiness in finding or purchasing products at regular market places (Magnusson; Arvola; Koivisto Hursti; Aberg; Sjoden, 2001).	The perception about importance of availability of century egg in regular market places.	ordinal
<i>The perception about importance of product attributes</i> <ul style="list-style-type: none"> • Nutrition 	The process of providing and receiving food necessary for health and growth (Oxford Advances Learners Dictionary, p. 942)	The perception about importance of century egg's nutrition.	Ordinal
<i>The perception about importance of product attributes</i> <ul style="list-style-type: none"> • Price 	An amount of money for which something may be bought or sold (McCarthy, Perreault and Quester, 1997, p. 749).	The perception about importance of century egg's price.	Ordinal

Table 3.2 Operational definition of variables (cont'd.)

Variable	Definition	Operational Component	Measurement
<i>The perception about importance of product attributes</i> • Quality	The totality of features and characteristics of a product or service that bears on its ability to satisfy stated or implied needs" (ISO 8402).	The perception about importance of century egg's quality.	Ordinal
<i>The perception about importance of product attributes</i> • Usage	The particular circumstances in which a consumer expects to use a product (Lai, 1991).	The perception about importance of century egg's usage.	Ordinal

CHAPTER IV

RESEARCH METHODOLOGY

This chapter provides an overview of methodology that will be used in this research. Section One is the data source. Section Two explains the data collection of this research. Section Three will discuss the data measurement. The last section is the data analysis.

4.1 Data source

A sampling design is applied for this study. It is the process in using a small number of items or parts of a larger population to make conclusion about the whole population. A sample is subset or some part of a larger populating. (Zikmund, 2000).

Sampling design process

1) Target population

A population is defined as the complete set of units of analysis that are under investigation (Davis, 1996). The target population is a specific complete group relevant to the research project. The target population of this research is shown as followed;

Element and Sampling unit: Element and sampling unit of this study is the same since the target population is the ultimate individual; that is both male and female who live in Bangkok area, have ever purchased century egg and do their food shopping at bazaars.

Extent: Original markets (bazaars) in Bangkok area; Klong Teay market, Huay Kwang market, Bang Sue market, Vong Vien Yai market, Bang Kapi market, and Nakorn Thai (Lad Praw 101) market.

Duration: September, 2003

2) Sampling frame

Zikmund (2000) stated that the sampling frame is the list of element from which the sample maybe drawn. This research does not have the list of Bangkok people who do their shopping at original markets (bazaars). In the other words, there is no the list of element; therefore, this research has no the sampling frame.

3) Sampling design

For this research, the non-probability sampling design is used for selecting samples. The researcher cannot use probability sampling in this study because it is very difficult to acquire the list of population who do their shopping at original markets. In non-probability sampling, the probability of any particular number of the population being chosen is unknown. Hence, it is suitable for this study to use the non-probability design.

The convenience sampling will be used in this study. It refers to the procedure of obtaining units or people who are most convenient available (Zikmund, 2000). The primary reason that the researcher will use this type of sampling procedure because it is less time consuming in completing a larger number of questionnaires; moreover, it is possible to accomplish with the limited budget.

4) Sample size

Sample size refers to the number of elements to be included in this study. Prior studies can serve as a guide for estimation sample sizes. In marketing research studies, typical ranges of sample sizes are used as shown in Table 4.1. These sample sizes have

been determined based on experience and can serve as rough guidelines, particularly when non-probability sampling techniques are used [Malhotra, 2000].

According to theory of Malhotra, the researcher subjectively determines sample sizes as 300 samples for gathering data from 6 bazaars in Bangkok. This figure is appropriate for the time and budget affordable for this study.

Table 4.1: Sample sizes used in marketing research studies

Type of Study	Minimum Size	Typical Range
Problem identification research (e.g. market potential)	500	1,000-2,500
Problem solving research (e.g. pricing)	200	300-500
Product tests	200	300-500
Test marketing studies	200	300-500
TV/radio/print advertising (per commercial or ad tested)	150	200-300
Test-marketing audits	10 stores	10-20 stores
Focus groups	6 groups	10-15 groups

Source: Naresh K. Malhotra (2002). *Basic Marketing Research*, p. 350-351

4.2 Data Collection

This research used a sample survey in collecting data. Survey requires asking people, who are called respondents, for information. Questionnaires are utilized to collect data. A survey is defined as a method of primary data collection based on communication with a representative sample of individual [Zikmund, 2000].

The questionnaires for this research were prepared in English, also translated into Thai in order to be easily understandable by respondents. The questions were the structured questions; limiting the number of responses available. Self-administered survey was employed; the questionnaires were filled by respondents rather than by means of an interviewer. There are some advantages of the self-administered survey [Cooper and Schilder, 1998] such as low cost, expanded geographic coverage without increase in cost. This method allows respondents time to think about the questions in a questionnaire. This research is a cross-sectional study. It means that the data of this study is collected at a single point in time.

In gathering the data, 300 questionnaires were distributed to respondents who shop for food at six bazaars in the Bangkok area and have ever purchased century egg. Fifty questionnaires were handed-out in each bazaar while conducting survey (shown as Table 4.2).

The researcher selected to distribute the questionnaires to respondents at 6 bazaars as shown in Table 4.2 because these bazaars are big in Bangkok and people who make their food shopping in these areas are variety in demographic. The gathered data from respondents from these areas can represent the purchase intention for century egg of consumers who shop for foods at original markets or bazaars.

Table 4.2: The number of respondents in each bazaar

Bazaar	Number of respondents
Klong Teay market	50
Huay Kwang market	50
Bang Sue market	50
Vong Vien Yai market	50
Bang Kapi market	50
Nakorn Thai (Lad Praw 101) market	50
Total	300

4.3 Data measurement

4.3.1 Questionnaire

Because of using a sample survey in this study, the questionnaire will be employed for gathering information from respondents. The formation of questionnaire is based on the conceptual framework and previous research.

This questionnaire is used to examine the factors relating to the purchase intention for century egg. The questionnaire consists of fifteen questions as followed:

For the first-two questions are screening questions, asking whether respondents live in Bangkok and used to purchase century egg or not. If the answer is “yes” in both questions, the respondents will be asked to continue the questions in part 1, 2, 3, and 4 respectively.

Part I: This part consists of two questions (no.3-4) designed to collect the information about consumers' perception about food safety concerns. Questions are conducted by statements using a five-point Likert scale ranging from "Highly" (=1) to "Never thought about that" (=5).

Part II: This part consists of six questions examining the perception about importance of century egg's product attributes to consumers. A list of product attributes are presented on a five-point Likert scale and consumers are asked to identify the level of importance of each one, where 1 = "Strongly important" to 5 = Strongly "unimportant".

Part III: In this part, only one question will be asked for century egg's purchase intention of consumers. Question is conducted by statement using a five-point Likert scale ranging from "Highly" (=1) to "Never thought about that" (=5).

Part IV: There are four questions in this part designed for gathering personal data of respondents.

Variables and questions in this research questionnaire are shown in Table 4.3.

Table 4.3 Variables and question numbers

Variable	Operational Component	Type of scale	Q. no.
<i>The perception about food safety concerns</i>			
• Chemical hazards	1. To what extend are you concerned about chemical hazards?	- Likert scale	Q. 3, Part I
• Microbiological hazards	2. To what extend are you concerned about microbiological hazards?	- Likert scale	Q. 4, Part I
<i>The perception about importance of product attributes</i>			
• Appearance	1. The perception about importance of century egg's appearance (Pink color of eggshell).	- Likert scale	Q. 5, Part II
• Availability	2.The perception about importance of century egg's availability	- Likert Scale	Q. 6, Part II
• Nutrition	3.The perception about importance of century egg's nutrition.	- Likert scale	Q. 7, Part II

Table 4.3: Variables and question numbers (cont'd.)

Variable	Operational Component	Type of Scale	Q. no.
<i>The perception about importance of product attributes</i>			
• Price	4.The perception about importance of century egg's price	- Likert scale	Q. 8, Part II
• Quality	5.The perception about importance of century egg's quality	- Likert scale	Q. 9, Part II
• Usage	6.The perception about importance of century egg's usage	- Likert scale	Q. 10, Part II
Purchase intention	1. To what extend do you intend to purchase century egg?	- Likert scale	Q 11, part III

4.3.2 Pre-testing

Churchill (1996) stated that each question in the questionnaire should be reviewed to ensure that the question is not confusing or ambiguous, potentially offensive to the respondents, leading or bias inducing and, also, is easy to answer. Pre-testing is a trial method to detect and solve the problem of the questionnaire design.

This research, pre-testing was done with the data-collection tool in order to test the reliability of the questionnaire by distributing thirty questionnaires to the randomly

selected respondents who live in Bangkok and have ever purchased century egg. The reliability value for the questionnaires is shown in Table 4.4.

Table 4.4: Reliability Value for Pre-testing

Questions	Reliability Value
The perception of food safety concerns (Q. 3-4)	0.7703
The perception of importance of product attributes (Q. 4-10)	0.7049

Sekaran (1992) mentioned that reliabilities less than 0.60 are generally considered to be poor, those in the 0.70 range, to be acceptable, and those over 0.80 to be good. Therefore, the reliability value of this research is sufficient for studying and surveying.

From the result, the researcher found ambiguous questions, which made respondents misunderstand. Mistakes were corrected and adjusted in terms of sequencing, wording, and structuring. Therefore, communication between the researcher and the respondents are not biased.

4.4. Data Analysis

After the primary data are collected from respondents by questionnaires, they will be encoded and interpreted by The Statistical Package for Social Science (SPSS), a widely used data analysis program to analyze the collected data. The form of data presentation from the procedures will be presented in easily interpretable formats. All statistical procedures are performed by the computer software package to ensure accuracy and minimize costs.

Statistics Used

The gathered information will be summarized and interpreted into two forms: descriptive statistics and inferential statistics.

4.4.1 Descriptive Statistics

Descriptive analysis refers to the transformation of the raw data into a form that will make them easy to understand and interpret. Describing responses or observations is typically the first form of analysis. The calculation of averages, frequency distributions, and percentage distributions in the most common form of summarizing data (Zikmund, 2000). The research will use descriptive statistics to measure the frequency and percentage for describing or summarizing the respondents' characteristics, which consist of gender, age, occupation, and educational level.

4.4.2. Inferential Statistics

Inferential statistics will be used for hypothesis testing. Since the purpose of this study is to determine the relationship between independent variables and a dependent variable, a Spearman's rank-order correlation coefficient becomes an appropriate means to interpret and analyze the data (Fink, 1995).

The formula for calculating the Spearman's rank-order correlation coefficient (r_s) is:

$$r = \frac{1 - 6 \sum d^2}{N(N^2 - 1)}$$

; where N = number of ranks

d = algebraic difference for each rack in the two distributions of ranks

The Spearman's rank-order correlation coefficient (r_s) is used to find the relationship of certain variables which are based on the scale of ordinal in the questionnaire, bivariate analysis has been used.

Interpretation of correlation coefficient

In general, correlation coefficient ranges from $r = 1$ to $r = -1$. If all the points in a data set are on a straight line having positive slope, the value of the sample correlation coefficient is $+1$, which that is a perfect correlation. On the other hand, if the points in the data set are on a straight line having a negative slope, the value of the sample correlation coefficient is -1 , which that is a perfect negative relationship. When the value of the same correlation coefficient is equal to zero, it indicates no linear relationship between X and Y and value of r_s near zero indicates a weak linear relationship (Anderson, Sweeney and Williams, 1996).

Decision rule for interpretation

H_0 will be rejected if

- a) The significant level (P value) is less than 0.05 and
- b) The value of the correlation coefficient ρ is not equal to zero (0).

The hypothesis and statistic used for this research will be shown in Table 4.4.

Table 4.4: Hypothesis and Statistics Used

Hypothesis	Statistics used
H1 ₀ : The perception about chemical hazard is not related to purchase intention for century egg.	Spearman's rank-order correlation coefficient
H2 ₀ : The perception about microbiological hazard is not related to purchase intention for century egg.	Spearman's rank-order correlation coefficient
H3 ₀ : The perception about importance of appearance is not related to purchase intention for century egg.	Spearman's rank-order correlation coefficient
H4 ₀ : The perception about importance of availability is not related to purchase intention for century egg.	Spearman's rank-order correlation coefficient
H5 ₀ : The perception about importance of nutrition is not related to purchase intention for century egg.	Spearman's rank-order correlation coefficient
H6 ₀ : The perception about importance of price is not related to purchase intention for century egg.	Spearman's rank-order correlation coefficient
H7 ₀ : The perception about importance of quality is not related to purchase intention for century egg.	Spearman's rank-order correlation coefficient

Table 4.4: Hypothesis and Statistics Used (Cont'd.)

Hypothesis	Statistics used
H8 _o : The perception about importance of usage is not related to purchase intention for century egg.	Spearman's rank-order correlation coefficient



CHAPTER V

DATA ANALYSIS

This chapter concerns the analysis of the collected data, which is divided into two sections. The first section is the analysis of the personal data of the respondents through the use of descriptive statistics. The second section is the testing of hypothesis through the use of inferential statistics; the Spearman's rank-order correlation coefficient (r_s).

5.1 The Analysis of Personal data of the Respondents

To summarize the research result, the descriptive statistics will be used to explain the respondents' personal data. The personal data of 300 respondents of this research consists of the following information;

- ▶ Gender
- ▶ Age
- ▶ Occupation
- ▶ Educational level

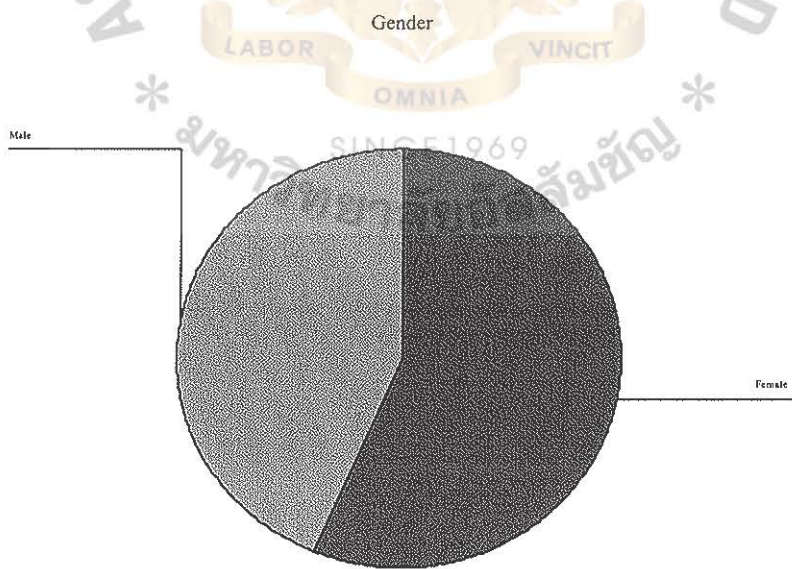
Gender

According to the analysis of information in the Table 5.1.1, the majority is female group, 161 respondents, which accounts for 56.3 % of the total of respondents. The male group composes of 131 respondents or 43.7 % of respondents.

Table 5.1 Gender of respondents

		Gender			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female	169	56.3	56.3	56.3
	Male	131	43.7	43.7	100.0
	Total	300	100.0	100.0	

Figure 5.1 Gender of respondents



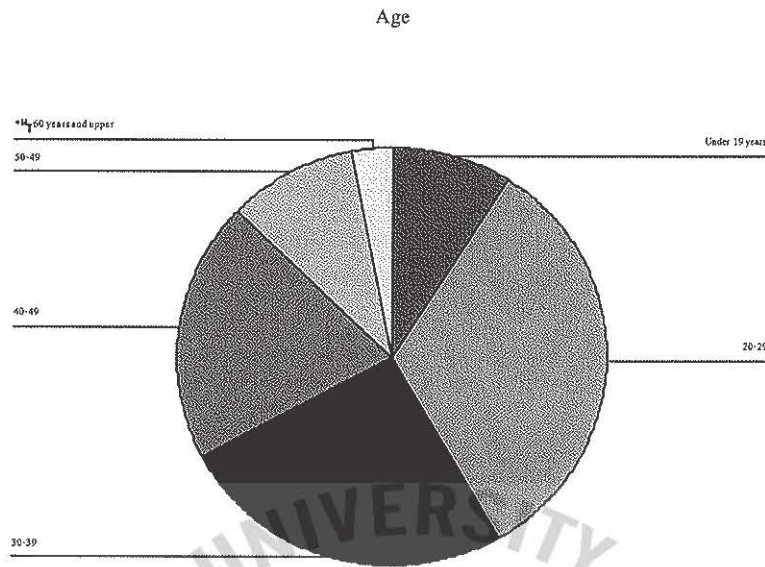
Age

Table 5.1.2 shows the analysis of respondents' age. The largest, 98 respondents or 32.7 % of the respondents are at the age between 20-29 years old. 25.3 % are between 30-39 years old. Sixty one respondents or 20.3 % are between 40-41 years old. Twenty nine respondents or 9.7 % are between 50-49 years old. Twenty seven or 9 % are under 19 years old and 9 respondents or 3 % are 60 years old and upper.

Table 5.2 Age of respondents

		Age			Cumulative
		Frequency	Percent	Valid Percent	Percent
Valid	Under 19 years	27	9.0	9.0	9.0
	20-29	98	32.7	32.7	41.7
	30-39	76	25.3	25.3	67.0
	40-49	61	20.3	20.3	87.3
	50-49	29	9.7	9.7	97.0
	60 years and upper	9	3.0	3.0	100.0
	Total *	300	100.0	100.0	*

Figure 5.2 Age of respondents



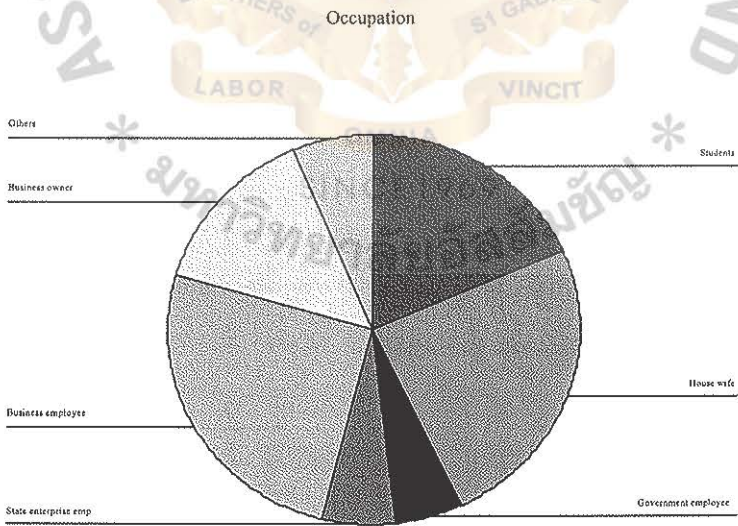
Occupation

According to the analysis of respondents' occupation, the largest group of respondents, 76 respondents or 25.3 % of the respondents is business employees. Seventy three or 24.3 % of respondents are house wives. Fifty five respondents or 18.3 % of the respondents are students. Forty three respondents or 14.3 % of the respondents are business owners. Eighteen respondents or 6. % of the respondents are state enterprise employees. Nineteen respondents or 6.3 % of the respondents are others; 11 general service persons, 7 cooks and 1 doctor. Only 16 respondents or 5.3 % of the respondents are government employees.

Table 5.3 Occupation of the respondents

		Occupation		Valid	Cumulative
		Frequency	Percent	Percent	Percent
Valid	Students	55	18.3	18.3	18.3
	House wife	73	24.3	24.3	42.7
	Government employee	16	5.3	5.3	48.0
	State enterprise employee	18	6.0	6.0	54.0
	Business employee	76	25.3	25.3	79.3
	Business owner	43	14.3	14.3	93.7
	Others	19	6.3	6.3	100.0
	Total	300	100.0	100.0	

Figure 5.3 Occupation of the respondents



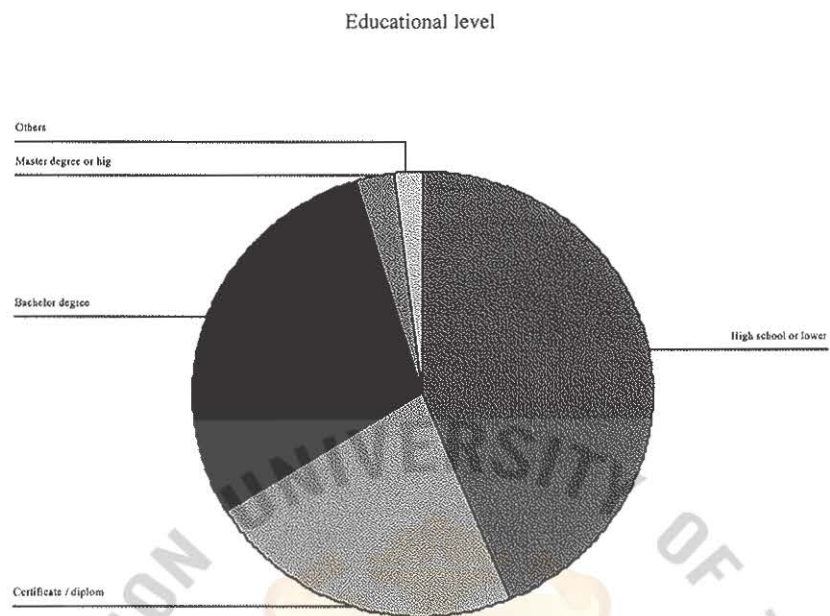
Educational level

The below table (Table 5.1.4) shows the educational level of respondents. One hundred and thirty-one respondents or 43.7 %of the respondents have high school or lower educational level, which is the majority. Eighty eight respondents or 29.3 % of the respondents have the bachelor degree. Sixty seven respondents or 22.3 % of the respondents have certificate or diploma. Only eight respondents or 2.7 % have the master degree or higher. The remainder, 6 respondents or 2 % of the respondents have other educational levels.

Table 5.4 Educational level of the respondents

		Educational level			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	High school or lower	131	43.7	43.7	43.7
	Certificate / diploma	67	22.3	22.3	66.0
	Bachelor degree	88	29.3	29.3	95.3
	Master degree or higher	8	2.7	2.7	98.0
	Others	6	2.0	2.0	100.0
	Total	300	100.0	100.0	

Figure 5.4 Educational level of the respondents



5.2 Hypothesis Testing

This section concerns about the testing of hypothesis for this research which is divided into two groups: the perception about food safety concerns (group A) and the perception about importance of product attributes (group B). The method of testing used here is the Spearman’s rank-order correlation coefficient (r_s) which is applied to examine the relationship between independent and dependent variables. Also, the results of the testing are discussed in this section.

Group A: The perception about food safety concerns

Hypothesis 1

Table 5.5 Spearman’s rank-order correlation coefficient test between the perception about chemical hazard and purchase intention for century egg

Correlations			The perception about chemical hazard	Purchase intention
Spearman's rho	The perception about chemical hazard	Correlation Coefficient	1.000	-.161(**)
		Sig. (2-tailed)	.	.005
		N	300	300
	Purchase intention	Correlation Coefficient	-.161(**)	1.000
		Sig. (2-tailed)	.005	.
		N	300	300

** Correlation is significant at the 0.01 level (2-tailed).

H1_o: The perception about chemical hazard is not related to purchase intention for century egg.

H1_a: The perception about chemical hazard is related to purchase intention for century egg.

Or in statistical term, it is stated as:

H1_o: $\rho = 0$

H1_a: $\rho \neq 0$, $\alpha = 0.025$, 95 % level of significance

Significant level (2-tailed test): The bivariate test shows the significant value of 0.005, which is less than 0.025. It means that the null hypothesis (H1_o) is rejected and the alternative hypothesis (H1_a) is accepted.

Correlation coefficient (p): The value of correlation coefficient is equal to - 0.161, which means that there is negative relationship between the perception about chemical hazard and purchase intention for century egg. It shows that correlation is significant at 99 % confident level under 2-tailed test.

Research discussion: The result of the test reveals that the perception about chemical hazard is a factor influencing to purchase intention for century egg of Bangkok consumers.

Hypothesis 2

Table 5.6 Spearman’s rank-order correlation coefficient test between the perception about microbiological hazard and purchase intention for century egg

Correlations

			The perception about microbiological hazard	Purchase intention
Spearman's rho	The perception about microbiological concerns	Correlation Coefficient	1.000	-.145(*)
		Sig. (2-tailed)	.	.012
		N	300	300
	Purchase intention	Correlation Coefficient	-.145(*)	1.000
		Sig. (2-tailed)	.012	.
		N	300	300

* Correlation is significant at the 0.05 level (2-tailed).

H2_o: The perception about microbiological hazard is not related to purchase intention for century egg.

H2_a: The perception about microbiological hazard is related to purchase intention for century egg.

Or in statistical term, it is stated as:

H2_o: $\rho = 0$

H2_a: $\rho \neq 0, \alpha = 0.025, 95\% \text{ level of significance}$

Significant level (2-tailed test): The bivariate test shows the significant value of 0.012, which is less than 0.025. It means that the null hypothesis (H_{2o}) is rejected and the alternative hypothesis (H_{2a}) is accepted.

Correlation coefficient (ρ): The value of correlation coefficient is equal to -0.145, which means that there is negative relationship between the perception about microbiological hazard and purchase intention for century egg. It shows that correlation is significant at 95 % confident level under 2-tailed test.

Research discussion: The result of the test reveals that the perception about microbiological hazard is a factor influencing to purchase intention for century egg of Bangkok consumers.



Group B: The perception about importance of product attributes

Hypothesis 3

Table 5.7 Spearman’s rank-order correlation coefficient test between the perception about importance of appearance and purchase intention for century egg

Correlations			The perception about importance of color	Purchase intention
Spearman's rho	The perception about importance of color	Correlation Coefficient	1.000	.179(**)
		Sig. (2-tailed)	.	.002
		N	300	300
	Purchase intention	Correlation Coefficient	.179(**)	1.000
		Sig. (2-tailed)	.002	.
		N	300	300

** Correlation is significant at the 0.01 level (2-tailed).

H3₀: The perception about importance of appearance is not related to purchase intention for century egg.

H3_a: The perception about importance of appearance is related to purchase intention for century egg.

Or in statistical term, it is stated as:

H3₀: $\rho = 0$

H3_a: $\rho \neq 0, \alpha = 0.025, 95\%$ level of significance

Significant level (2-tailed test): The bivariate test shows the significant value of 0.005, which is less than 0.025. It means that the null hypothesis (H_{3_0}) is rejected and the alternative hypothesis (H_{3_a}) is accepted.

Correlation coefficient (ρ): The value of correlation coefficient is equal to 0.179, which means that there is positive relationship between the perception about importance of appearance and purchase intention for century egg. It shows that correlation is significant at 99 % confident level under 2-tailed test.

Research discussion: The result of the test reveals that the perception about importance of appearance is a factor influencing to purchase intention for century egg of Bangkok consumers.



Hypothesis 4

Table 5.8 Spearman's rank-order correlation coefficient test between the perception about importance of availability and purchase intention for century egg

Correlations

			The perception about importance of availability	Purchase intention
Spearman's rho	The perception about importance of availability	Correlation Coefficient	1.000	-.017
		Sig. (2-tailed)	.	.765
		N	300	300
	Purchase intention	Correlation Coefficient	-.017	1.000
		Sig. (2-tailed)	.765	.
		N	300	300

H_{4o}: The perception about importance of availability is not related to purchase intention for century egg.

H_{4a}: The perception about importance of availability is related to purchase intention for century egg.

Or in statistical term, it is stated as:

H_{4o}: $\rho = 0$

H_a: $\rho \neq 0$, $\alpha = 0.025$, 95 % level of significance

Significant level (2-tailed test): The bivariate test shows the significant value of 0.765, which is more than 0.025. It means that the null hypothesis (H_{4o}) is accepted and the alternative hypothesis (H_{4a}) is rejected.

Research discussion: The result of the test reveals that the perception about importance of availability is not a factor influencing to purchase intention for century egg of Bangkok consumers.



Hypothesis 5

Table 5.9 Spearman's rank-order correlation coefficient test between the perception about importance of nutrition and purchase intention for century egg

Correlations

			The perception about importance of nutrition	Purchase intention
Spearman's rho	The perception about importance of nutrition	Correlation Coefficient	1.000	-.095
		Sig. (2-tailed)	.	.100
		N	300	300
	Purchase intention	Correlation Coefficient	-.095	1.000
		Sig. (2-tailed)	.100	.
		N	300	300

H5₀: The perception about importance of nutrition is not related to purchase intention for century egg.

H5_a: The perception about importance of nutrition is related to purchase intention for century egg.

Or in statistical term, it is stated as:

H5₀: $\rho = 0$

H5_a: $\rho \neq 0$, $\alpha = 0.025$, 95 % level of significance

Significant level (2-tailed test): The bivariate test shows the significant value of 0.100, which is more than 0.025. It means that the null hypothesis (H_{5o}) is accepted and the alternative hypothesis (H_{5a}) is rejected.

Research discussion: The result of the test reveals that the perception about importance of nutrition is not a factor influencing to purchase intention for century egg of Bangkok consumers.



Hypothesis 6

Table 5.10 Spearman’s rank-order correlation coefficient test between the perception about importance of price and purchase intention for century egg

Correlations

			The perception about importance of price	Purchase intention
Spearman's rho	The perception about importance of price	Correlation Coefficient	1.000	.051
		Sig. (2-tailed)	.	.374
		N	300	300
	Purchase intention	Correlation Coefficient	.051	1.000
		Sig. (2-tailed)	.374	.
		N	300	300

H6_o: The perception about importance of price is not related to purchase intention for century egg.

H6_a: The perception about importance of price is related to purchase intention for century egg.

Or in statistical term, it is stated as:

H6_o: $\rho = 0$

H6_a: $\rho \neq 0, \alpha = 0.025, 95 \%$ level of significance

Significant level (2-tailed test): The bivariate test shows the significant value of 0.374, which is more than 0.025. It means that the null hypothesis (H_{6o}) is accepted and the alternative hypothesis (H_{6a}) is rejected.

Research discussion: The result of the test reveals that the perception about importance of price is not a factor influencing to purchase intention for century egg of Bangkok consumers.



Hypothesis 7

Table 5.11 Spearman’s rank-order correlation coefficient test between the perception about importance of quality and purchase intention for century egg

Correlations

			The perception about importance of quality	Purchase intention
Spearman's rho	The perception about importance of quality	Correlation Coefficient	1.000	.206(**)
		Sig. (2-tailed)	.	.000
		N	300	300
	Purchase intention	Correlation Coefficient	.206(**)	1.000
		Sig. (2-tailed)	.000	.
		N	300	300

** Correlation is significant at the 0.01 level (2-tailed).

- H7_o: The perception about importance of quality is not related to purchase intention for century egg.
- H7_a: The perception about importance of quality is related to purchase intention for century egg.

Or in statistical term, it is stated as:

H7_o: $\rho = 0$

H7_a: $\rho \neq 0, \alpha = 0.025, 95 \% \text{ level of significance}$

Significant level (2-tailed test): The bivariate test shows the significant value of 0.000, which is less than 0.025. It means that the null hypothesis (H_{7o}) is rejected and the alternative hypothesis (H_{7a}) is accepted.

Correlation coefficient (ρ): The value of correlation coefficient is equal to 0.206, which means that there is positive relationship between the perception about quality and purchase intention for century egg. It shows that correlation is significant at 99 % confident level under 2-tailed test.

Research discussion: The result of the test reveals that the perception about importance of quality is a factor influencing to purchase intention for century egg of Bangkok consumers.



Hypothesis 8

Table 5.12 Spearman's rank-order correlation coefficient test between the perception about importance of usage and purchase intention for century egg

Correlations

			The perception about importance of usage	Purchase intention
Spearman's rho	The perception about importance of usage	Correlation Coefficient	1.000	.200(**)
		Sig. (2-tailed)	.	.000
		N	300	300
	Purchase intention	Correlation Coefficient	.200(**)	1.000
		Sig. (2-tailed)	.000	.
		N	300	300

** Correlation is significant at the 0.01 level (2-tailed).

H8₀: The perception about importance of usage is not related to purchase intention for century egg.

H8_a: The perception about importance of usage is related to purchase intention for century egg.

Or in statistical term, it is stated as:

H8₀: $\rho = 0$

H8_a: $\rho \neq 0$, $\alpha = 0.025$, 95 % level of significance

Significant level (2-tailed test): The bivariate test shows the significant value of 0.000, which is less than 0.025. It means that the null hypothesis (H_{8_0}) is rejected and the alternative hypothesis (H_{8_a}) is accepted.

Correlation coefficient (ρ): The value of correlation coefficient is equal to 0.200, which means that there is positive relationship between the perception about usage and purchase intention for century egg. It shows that correlation is significant at 99 % confident level under 2-tailed test.

Research discussion: The result of the test reveals that the perception about importance of usage is a factor influencing to purchase intention for century egg of Bangkok consumers.



Summary of results of hypothesis testing

Table 5.13 shows the result of hypothesis testing group A (the perception about food safety concerns) and purchase intention. The result of hypothesis testing group B (the perception about importance of product attributes) and purchase intention is shown in Table 5.14.

Table 5.13 Summary of results of hypothesis testing group A (the perception about food safety concerns) and purchase intention

Hypothesis	Statistical test	Level of significance	Result
H1 ₀ : The perception about chemical hazard is not related to purchase intention for century egg.	Spearman's rho	0.005	Reject H ₀
H2 ₀ : The perception about microbiological hazard is not related to purchase intention for century egg.	Spearman's rho	0.012	Reject H ₀

The result from hypothesis testing between each independent Group A (the perception about food safety concerns) and purchase intention (hypotheses 1 and 2) shows that the perception about chemical and microbiological hazard are related to purchase intention for century egg.

Table 5.14 Summary of results of hypothesis testing group B (the perception about importance of product attributes) and purchase intention

Hypothesis	Statistical test	Level of significance	Result
H3 _o : The perception about importance of appearance is not related to purchase intention for century egg.	Spearman's rho	0.002	Reject H _o
H4 _o : The perception about importance of availability is not related to purchase intention for century egg.	Spearman's rho	0.765	Accept H _o
H5 _o : The perception about importance of nutrition is not related to purchase intention for century egg.	Spearman's rho	0.100	Accept H _o
H6 _o : The perception about importance of price is not related to purchase intention for century egg.	Spearman's rho	0.374	Accept H _o
H7 _o : The perception about importance of quality is not related to purchase intention for century egg.	Spearman's rho	0.000	Reject H _o
H8 _o : The perception about importance of usage is not related to purchase intention for century egg.	Spearman's rho	0.000	Reject H _o

The result from hypothesis testing between each independent Group B (the perception about importance of product attributes) and purchase intention (hypotheses 3-8) shows that the perception about importance of appearance, quality and usage are associated with purchase intention for century egg. In the other hand, the perception about importance of availability, nutrition and price are not associated to purchase intention for century egg.



CHAPTER VI

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

This chapter serves as a conclusion of the whole research. Section one will be the summary of research's findings. Section two is the conclusion of this research. Section three yields the recommendation for manufacturers and marketers of century egg as well as for further study.

6.1 Summary of findings

Referring to the statement of problem of this research “what are the factors associated with purchase intention for century egg?”, the research focuses on identifying the factors that yields to purchase intention for century egg of Bangkok consumers . From the hypothesis testing part in Chapter 5, two groups of hypothesis; group A (the perception about food safety concerns) and group B (the perception about importance of product attributes) are examined whether they have the relationship with purchase intention for century egg.

Group A: The perception about food safety concerns

Chemical and microbiological hazard are sub-variables of group A hypotheses. The result of hypothesis testing showed that these two factors associate to purchase intention for century egg. Moreover, the researcher found out that these 2 factors have the negative relationship with purchase intention for century egg.

Group B: The perception about importance of product attributes

There are 6 sub-variables in this group; the perception of the importance of appearance (in term of century egg's eggshell's color), availability, nutrition, price, quality and usage. The result of the hypothesis testing showed that the perception of importance of appearance, quality and usage are factors associating with purchase intention for century egg. The researcher also found out that all three factors have the positive relationship with purchase intention for century egg. However, the perception of importance of availability, nutrition, and price are not related to purchase intention for century egg.

6.2 Conclusions

The objectives of this research are; (1) To examine relationship between consumers' concerns about food safety with purchase intention of century egg and (2) To determine relationship between product attributes of century egg and purchase intention of consumers.

It can be reasonably concluded that the first objective has been achieved because the result of this research showed that there are negative relationship between consumer's concerns about food safety; chemical and microbiological hazard, and purchase intention for century egg. This result corresponds to the result of Huang (1993); Eom (1994)'s research that there is a negative correlation between perception of risk and purchase likelihood for food products. The higher Bangkok consumers concern about food safety, the lower they intend to purchase century egg.

For the second objective, this research has also accomplished it. The researcher found out those product attributes of century egg as appearance (century egg's eggshell's color), quality and usage have the positive relationship with the purchase intention for

century egg of Bangkok consumers. Supporting the result of the relationship between appearance and purchase intention for food product, Hutchings (1994)'s research revealed that the appearance properties provide the first impression encountered by consumers, which may subsequently affect their purchase decision especially in circumstances where the food product can be seen. On the other hand, product attributes as availability, nutrition and price have no relationship with purchase intention for century egg of Bangkok consumers.

Hence, it can be concluded that the research throws light on the century egg manufacturers and marketers. They will be able to decide on what factors they should regard in order to develop the product to satisfy and attract Bangkok consumers to have the intention to purchase the product.

6.3 Recommendations

6.3.1 Recommendations for century egg's manufacturers and marketers

According to the significance of the study as mentioned earlier in chapter 1, the research's results yield benefits to the manufacturers and marketers of century egg. This research can help them more understanding consumers' purchase intention for century egg, also help them be able to identify factors influencing to century egg's purchase intention of Bangkok consumers. They will be able to develop their products to satisfy the consumers. In addition, they will be able to generate the suitable market plan or strategy for their products in order to survive in this industry.

This research's result has identified five factors relating to purchase intention for century egg, which are (1) the perception about chemical hazard, (2) the perception about microbiological hazard, (3) the perception about importance of appearance in term of the color of century egg's eggshell, (4) the perception about importance of quality and (5) the

perception about importance of usage. This means that these five factors are also the keys to create the century egg's purchase likelihood of Bangkok consumers. Below are recommendations for each factor:

The perception about chemical hazard

This research's result reveals that the perception about chemical hazard have the negative correlation with purchase intention for century egg. It means that the higher Bangkok consumers concern about the chemical hazard in food, the lower they intend to purchase century egg. Yeung and Morris (2001) defined the meaning of the chemical hazard as the hazard that associates with the use of chemical additives, processes and controls in food industries, both purposely and unintentionally. Therefore, the century egg manufactures should avoid using any chemical, which are dangerous to consumers' health, in century egg's production. The manufacturers should continuously examine their products to make sure that they are not harmful to consumer's health as well. Moreover, the safety of century egg in market places is controlled by Food and Drug Administration, Ministry of public Health. Manufacturers should seriously follow rules and prohibitions in producing the century egg.

The perception about microbiological hazard

According to the research conclusions, the perception about microbiological hazard is negatively related to purchase intention for century egg. The higher Bangkok consumers concern about the microbiological hazard in food, the lower likelihood to purchase century egg of them. Microbiological hazards include all hazards caused by bacteria (Yeung and Morris 2001). As stated in the introduction of the study part, chapter 1 that the century egg is a free bacteria food; therefore, people can have it without

cooking (Ranee, 1986). Hence, the manufacturers and marketers should inform consumers to perceive that this kind of egg is free germ food. When they have it, it is rather sure that they are safe from microbiological hazard.

According to Yeung and Morris's research (2001) expressed that Where consumers perceive risk or hazard from food, they often develop strategies to reduce risk. Roselius (1971) observed that consumers tend to adopt one of four broad actions to reduce perceived risk in a purchase, namely to: (1) stop, permanently or temporarily (2) reduce the purchase of the offending product and thereby reduce the exposure to perceived risk (3) shift from one product to another similar type of product with less perceived risk (4) continue to purchase and absorb the unresolved risk, indicating that the perceived risk associated with a particular product is tolerable and no greater than alternatives.

Consumer risk management strategies clearly respond to and influence the risk management strategies adopted by the food industry. It is important; therefore, that those engaged in the food supply chain, from farm to retail outlet, have a clear understanding of how and why consumers perceive food safety risk. They also need to know how best to address these concerns by explicitly integrating risks management strategy within the marketing mix.

Responses by the food industry could include segregating markets according to risk perceptions or behavior. The industry could draw benefit from exploring how consumer perception of food safety risk varies in response to alternative marketing strategies such as product design (relating to microbiological, chemical and technological features), promotions and communications (including methods to inform or persuade

about risk), distribution systems and logistics (including quality assurance and traceability) and so on.

The perception about importance of appearance

According to the research result, there is positive relationship between the perception about importance of appearance (color of century egg's eggshell) and purchase intention for century egg. It means that appearance in term of color of century egg's eggshell has the influence to Bangkok consumers whether they are willing to pay for this kind of egg. So, the manufacturers and marketers should try to understand consumers about the color of century egg's eggshell they prefer (for example; in term of the level of pink color and shade of pink color) for developing the product appearance to attract Bangkok consumers' century egg's purchase intention

The perception about importance of quality

The result of the research showed that the perception about importance of quality of Bangkok consumers have the positive relationship with purchase intention for century egg. It means that the quality is a key factor to attract Bangkok consumers' purchase likelihood for century egg. Product quality is the totality of features and characteristics of a product that bear on its ability to satisfy stated or implied needs" (ISO 8402). If the century egg's manufacturers and marketers can satisfy the need of Bangkok consumers about the product quality; consequently, consumers will intend to purchase century egg. Hence, the manufacturers and marketers should always try to develop their products to have high quality in term of intrinsic quality (e.g. color, size, flavor, texture) and extrinsic quality (e.g. price, stamp of quality, production information). In addition, the manufacturers and marketers should continuously control and examine the quality of

products, which are distributed to consumers for keeping the standard of century egg's quality in the markets.

The perception about importance of usage

The perception about importance of usage has the positive correlation with purchase intention for century egg. The usage of century egg is a factor in attracting Bangkok consumers to purchase century egg. Usage is the particular circumstances in which a consumer uses a product to satisfy or meet his/her need (Lai 1991). The usage of century egg is preparing as appetizer and meal. In addition, century egg can be consumed in both cooked and uncooked foods. The manufacturers and marketers should motivate the purchase intention for century egg of Bangkok consumers by offering various usages of century egg. It may be giving information about the usages of century egg on the labels or packages, or attaching a brochure about various century eggs' usages with century egg's selling. In addition, the manufactures and marketers should develop the usage of century egg to be more variety of recipes for attracting the consumers' purchase intention.

6.3.2 Further research

This research aims to study the relationship between the perception about food safety concerns and the perception about importance of product attributes. However, there are other factors which are related to purchase intention for food products such as demographic factors, marketing mix (4P's) and so on. The next point of expansion study may focus on other factors.

Since the focus of this research is limited to the Bangkok area, its findings may not be generalized to other provinces in Thailand. Therefore, further study should be

studied about the purchase intention for century egg of consumers in other regions of Thailand.



BIBLIOGRAPHY

- (1993), Alkalized eggs, Thai Industrial Standard Administration, Ministry of Industry, pp.1-3.
- Andersen, E.S. (1994), The evolution of credence goods: a transaction approach to product specification and quality control, MAPP Working Paper, No. 21, Aarhus School of Business.
- Anderson, J. (1991), Seafood quality: Issues for consumer researchers. Journal of Consumer Affairs, Summer 1991, Vol. 25 Issue 1, p144, 20p.
- Anderson, Sweeney, and Williams (1996), Statistics for Business and Economics, 6 edition, USA: West Publish Company.
- Barnes, James G. (1975), Factors Influencing Consumer Reaction to Retail Newspaper "Sale" Advertising, Combined Proceedings of the American Marketing Association, Vol. 37, Edward M. Mazze, ed. Chicago: American Marketing Association, pp. 471-77.
- Becker Tillman (2000), Consumer perception of fresh meat quality: a framework for analysis, British Food Journal, Volume 102, Issue 3, pp. 158-176.
- Belk, R. (1977), An exploratory assessment of situational effects in buyer behavior, Journal of Research, Vol. 11, No. 5, pp.156-63.
- Bower John A.; Saadat Mohammad A.; Catherine Whitten (2003), Effect of liking, information and consumer characteristics on purchase intention and willingness to pay more for a fat spread with a proven health benefit. Food Quality & Preference, Jan 2003, Volume 14, Issue 1, p. 65, 10p.
- Burton Scot; Garreston Judith A. and Velliquette Anne M. (1999), Implications of accurate usage of nutrition facts panel information for food product evaluations and purchase intentions, Academy of Marketing Science Journal, Greenvale, Fall 1999.

- Chantana Chutiteparak and friends (1989), Processing of alkalized eggs without using lead compound, Food and Drug Administration, Ministry of Public Health.
- Chow, S., Celsi, R., Abel, R. (1990), The effects of situational and intrinsic sources of personal relevance on brand choice decisions, Advances in Consumer Research, 17, 755-9.
- Churchill, A. Gillbert Jr (1996), Basic marketing Research, Third edition, The Dryden Press, Philadelphia.
- Christopher Ritson and Li Wei Mai., (1998), The economics of food safety. Nutrition & Food Science, Volume 98, Number 5, 1998, pp. 253-259.
- Compeau, Larry D. and Grewal, Dhruv. (1994), Comparative price advertising: an integrative review. Journal of Public Policy & Marketing, Volume 17, Number 2 (Fall 1998), p. 257-273.
- Cook A.J.; Kerr G.N.; Moore K. (2002), Attitudes and intentions toward purchasing GM food. Journal of Economics Psychology, Oct. 2002, Volume 23, Issue 5, p. 557, 16 p, 15 charts.
- Cooper, R. and Schindler, Pamela S. (1998), Business Research Methods, Sixth edition, Boston, McGraw-Hill International Editions.
- Creusen and Hubertina Maria Elisabeth (1998), Product appearance and consumer choice, Technische Universiteit Te Delft (The Netherlands) DAI-C 60/02, p. 251, Summer 1999, Abstract from: Pro Quest-Dissertation Abstracts.
- Darby, M.R. and Karni, E. (1973), Free competition and the optimal amount of fraud, Journal of Law and Economics, Vol. 16, pp. 67-88.
- Davis, Duane (1996), Business Research for Decision Making, Fourth edition, California: Duxbury Press, pp. 22-23.
- Davis, Duane and Cosenza Robert M. (1988), Business Research for Decision Making, USA, PWS-KENT.

- Deighton, John (1997), Commentary on exploring the implications of the internet for consumer marketing, Journal of Academy of Marketing Science, 25 (4), 347-351.
- Deutsche Gesellschaft für Qualität (1980), "Begriffe und Formalzeichen im Bereich der Qualitätssicherung", in Becker Tillman (Eds.), Consumer perception of fresh meat quality: a framework for analysis, British Food Journal, Volume 102, Issue 3, pp. 158-176.
- Dodds, William, and Dhruv Grewal (1991), The effects of price, brand, and store information on buyers' product evaluations, Journal of Marketing Research, 28 (August), pp. 307-19.
- Dodds, William and Kent B. Monroe (1985), The effect of brand and price information on subjective product evaluations, Advances in Consumer Research, Vol. 2, E.C. Hirschman and M.B. Holbrook, eds. Provo, UT: Association for Consumer Research, pp. 85-90.
- Duane Davis (1996), Business Research for Decision Making, Fourth edition, Wadworth Publishing Company.
- Eom, Y.S. (1994), Pesticide residue risk and food safety valuation: a random utility approach, American Journal of Agricultural Economics, St. Paul, MN, Volume 76, Number 4, pp. 760-72.
- Ernst, E. (1995), "Schlachtkörperbewertung vom Rind, Schwein, Schaf und Geflügel", in Becker Tillman (Ed.), Consumer perception of fresh meat quality: a framework for analysis, British Food Journal, Volume 102, Issue 3, pp. 158-176.
- Etzel Michael J., Walker Bruce J., and Stanton William J. (1997), Marketing, Eleventh edition, McGraw-Hill.
- Fink, A. (1995), How to analyze survey data. California: Sage.
- Gabor, A. and Granger, C.W.J. (1966), Price as and indicator of quality: report on an inquiry, Economica, Vol.33, pp.43-70.

- Grewal Dhruv; Krishnan R.; Baker Julie (1998), The effect of store name, brand name and price discounts on consumers' evaluations and purchase intentions. Journal of Retailing, Volume 74, Number 3 (Fall 1998), pp. 331-352.
- Grewal, Dhruv, Kent B. Monroe, and R. Krishnan (1998), The Effects of Price-Comparison Advertising on Buyers' Perceptions of Acquisition Value, Transaction Value, and Behavioral Intentions, Journal of Marketing, 62 (April), 46-59.
- Haley, R.J., (1968), Benefit segmentation: a decision-oriented research tool, Journal of Marketing, July, 30-5.
- Hardesty, David M.; Carlson, Jay P.; and Bearden, William O., (2002), Brand Familiarity and Invoice Price Effects on Consumer Evaluations: The Moderating Role of Skepticism toward Advertising, Journal of Advertising, Volume 31, Number 2 (Summer 2002), p. 1-15.
- Hanna Nessim and Wozniak Richard (2001), Consumer Behavior, New Jersey: Prentice Hall International.
- Hawkins Del L., Best Roger J., and Coney Kenneth A. (1992), Consumer Behavior, Eight edition, New York: McGraw-Hill, pp. 19-21.
- Henson, S. and Traill, B. (1993), The demand for food safety: market imperfections and the role of government, Food Policy, Volume 18, Number 2.
- Gerhardy, H. (1996), "Verbraucherorientierte Rindfleischversorgung", in Becker Tillman (Ed.), Consumer perception of fresh meat quality: a framework for analysis, British Food Journal, Volume 102, Issue 3, pp. 158-176.
- Hobbs, Jill E. (1998), Innovation and future direction of supply chain management in the Canadian agri-food industry. Canadian Journal of Agricultural Economics, Volume 46, Number 4 (Dec. 1998), Page 525-37.

- Huang, C.L. (1993), Simultaneous-equation model for estimating consumer risk perceptions, attitudes, and willingness-to-pay for residue-free produce, The Journal of Consumer affair, Volume 27, Number 2, Madison, pp. 377-88.
- Hughes, G.D. (1971), Attitude Measurement for Marketing Strategies, Scott Foresman, Glenview, IL.
- Imram and Binte Nazlin. (1999), Sensory perception and manipulation of color and appearance attributes in formulated dairy dessert gels, Open University (United Kingdom), DAI-C 61/02, p. 396, Summer 2000, Abstract from: Pro Quest-Dissertation Abstracts.
- Information Technology Center (2002), Yearly Statistics Report 2002, Department of Livestock Development, Ministry of Agriculture Cooperation.
- Jenkinson Warner (1999), A question of color. Food Manufacture, April, p.19.
- Juran, J.M. (1979), Quality Control Handbook, McGraw-Hill, New York, NY.
- Keiser, Stephen E. and James R. Krum (1976), Consumer Perceptions of Retail Advertising with Overstated Savings, Journal of Retailing, 52 (Fall), pp. 27-37.
- Klein, Lisa R. (1998), Evaluating the potential of interactive media through a new lens: Search versus experience goods, Journal of Business Research, 41 (3), 195-203.
- Kotler Philip (2000), Marketing management, The millennium edition, NJ: Prentice Hall International, Inc, pp. 173, 178-183.
- Kotler Philip and Armstrong Gay (1994), Principles of Marketing: Prentice Hall International, Inc.
- Kronidl, M.M. and Lau, D. (1982), Social determinants in human food selection, In Barker, L.M. (Ed.), The Psychobiology of Human Food Selection, AVI, Westport, CT, pp. 139-51.
- Kramer, C.S. (1990), Food safety: the consumer side of the environmental issue, Southern Journal of Agricultural Economics, pp. 33-40.

- Kupiec Beata; Revell Brian (2001), Measuring consumer quality judgments. British Food Journal, Volume 3, Issue 1, pp. 7-21.
- Lai, A. (1991), Consumer situation and product knowledge in the adoption of a new product, European Journal of Marketing, Volume 25, Number 10, pp.55-67.
- Lamb, Charles W., Hair, Joseph F., and McDaniel Carl (1993), Marketing, 3 edition: USA: South Western College, pp. 283-308.
- Li Hairong, Daugherty Terry and Biocca Frank. (2002), Impact of 3-D advertising on product knowledge, brand attitude, and purchase intention: The mediating role of presence. Journal of Advertising, Volume 31, Issue 3, Page 43-57, Provo; Fall 2002.
- Livestock Extension Division (2001), Yearly Livestock Economic Information 2001, Department of Livestock Development, Ministry of Agriculture & Cooperative, p. 30-32.
- Livestock Extension Division (2002), Yearly Livestock Economic Information 2002, Department of Livestock Development, Ministry of Agriculture & Cooperative, p. 28-29.
- Magnusson Maria K., Arvola Anne, Ulla-Kaisa ; Koivisto Hursti Lars Aberg; Sjoden Per-Olow (2001), Attitudes towards organic foods among Swedish consumers. British Food Journal, Volume 103, Issue 3, pp. 209-226.
- Mason and Kevin H. (1995), Impacts of product information relevancy need for cognition product experience on products attribute evaluation bias, University of Arkansas. DAI-A 57/03, p. 1232, Sep 1996, Abstract from: Pro Quest-Dissertation Abstracts, Publication Number. AAT 9622403.
- McCarthy Jerome E., Perreault William D. and Quester Pascale G. (1997), Basic Marketing: A Managerial Approach, McGraw-Hill Book Company Australia Pty Limited, pp. 749.

- Mitsostergios, K. T. and Skiadas, C. H. (1994), Attitudes and perceptions of fresh pasteurized milk consumers: A qualitative and quantitative survey, British Food Journal, Volume 96, Issue 7, Start page: 4.
- Moore, David J. and Richard W. Olshavsky (1989), Brand Choice and Deep Price Discounts, Psychology and Marketing, 6 (Fall), pp. 181-96.
- Murphy M., Cowan C., Henchion M., and O'Reilly S. (2000), Irish consumer preferences for honey: a conjoint approach, British Food Journal, Volume 102, Issue 8, pp. 585-597.
- Nelson, Philip. (1974), Advertising as Information, Journal of Political Economy, 81 (4): 729-754.
- Nelson, P. (1970), Information and consumer behavior, Journal of Political Economy, Vol. 78, pp. 311-29.
- Nevin, J.R. and Michael Houston. (1980). Images as a Component of Attractiveness to Intra-Urban Shopping Areas, Journal of Retailing, 56 (Spring): 77-93.
- Northern James R. (2000), Quality attributes and quality cues Effective communication in the UK meat supply chain, British Food Journal, Volume 102, Issue 3, pp. 230-245.
- O' Donovan P. and McCarthy, (2002), Irish consumer preference for organic meat, British Food Journal, Volume 104, Number 3/4/5, pp. 353-370.
- Olshavsky, Richard W. (1985), Perceived quality in consumer decision making: An integrated theoretical perspective, pp. 3-29, In J. Jacoby and J. Olson (Eds.), Perceived Quality, Lexington, MA: Lexington Books.
- Olson, Jerry C. and Jacob Jacoby (1972), Cue utilization in the quality perception process, pp. 167-179, In M. Venkatesan (Ed.), Proceedings of the Third Annual Conference of the Association for Consumer Research, Iowa City: Association for Consumer Research.
- Payungsak Manochai (1999), Processing of alkalized eggs without using heavy metal, Master of Food Science, Kasetsart University.

- Puntip Subsomboon (2000), Predicting factors on chili paste purchase: A selective study on Bangkok Consumer, Assumption University.
- Punya Pothitirat and Surachet Littivikul. (1993), Preserved Egg Techniques, Faculty of Agricultural Technology, Agricultural Technology Institution (Joa Kun Thaharn, Lad Krabang).
- Raats, M., Daillant-Spinnler, B., Deliza, R. and MacFie, H.J.H. (1995), Are sensory properties relevant to consumer food choice?, In Marshall (Ed.), Food Choice and the Consumer, Chapman Hall, London, pp. 239-63.
- Ranee Surakarnkul (1986), Processing of Duck's egg to produce pidan with low content of lead, Food Technology Department, Chulalongkorn University.
- Roselius, T. (1971), Consumer rankings of risk reduction methods, Journal of Marketing, Vol. 35 No. 1, pp. 56-61.
- Rujee Wanichayakarn (1987), Century egg, Science and Technology, Volume 3, Issue 1, pp. 7-13.
- Russ and Kirkpatrick (1982), Marketing, USA: Little Brown, pp. 204-229.
- Schiffman Leon G. and Kanuk Leslie Lazar (1997), Consumer Behavior, Sixth edition, NJ: Prenhall International.
- Sekaran, Uma (1992), Sampling” and “Data Analysis and Interpretation, Research Methods for Business: A Skill-Building Approach, Second edition, New York: J. Wiley.
- Shepherd, R. (1995), Psychological aspects of food choice, Food Science and Technology, Vol. 9, No. 3, pp. 178-82.
- Shepherd R. and Towler G. (1992), Nutrition knowledge, attitudes and fat intake: Application of the theory of reasoned action, Journal of Human Nutrition and Dietetics, 5: 387-397.
- Shine Angela; O'Reilly Seamus; O'Sullivan Kathleen (1997), Consumer attitudes to nutrition labeling, British Food Journal, Volume 99, Issue 8, pp. 283-289.

- Skinner Steven J. (1991), Marketing, Second edition, Massachusetts: Houghton Mifflin, pp. 218-225.
- Smith Dominic, Riethmuller Paul (2000), Consumer concerns about food safety in Australia and Japan, British Food Journal, Volume 102, Number 11, pp. 838-855.
- Smith, Robert E. (1993), Integrating information from advertising and trial: Processes and effects on consumer response to product information, Journal of Marketing Research, 30 (May), 204-219.
- Smith, Robert E. and William R. Swinyard (1982), Information response models: An integrated approach, Journal of Marketing, 46 (Winter), 81-93.
- Solomon, Michael R. (1991), Consumer Behavior, USA: Allyn and Bacon, pp. 240-273.
- Steenkamp, J-B.E.M. (1989), Product Quality, Van Gorcum, Assen, The Netherlands.
- Supachai Tharashewin (1995), Pidan Production from quail eggs, Food Technology, Science Faculty, Chulalongkorn University.
- Tuorila H. (1987), Selection of milks with varying fat contents and related overall liking, attitudes, Norms and Attentions, Appetite, 8: 1-14.
- Tuorila H. and Pangborn R. (1988), Prediction of reported consumption of selected fat-containing foods, Appetite, 11: 81-95.
- Varadarajan, P. Rajan (1986), Consumers' Behavioral Responses to Coupon Price Promotions: An Empirical Inquiry, AMA Educators' Proceedings, Vol. 52, Terence A. Shimp et al., eds. Chicago: American Marketing Association, pp. 211.
- Wanlee Chareonvitthanadej (2000), A study on factors affecting purchasing decision on Tabtim fish (Oreochromis sp.), Kasetsart University.
- Wright, Alice A. and John G. Lynch Jr. (1995), Communication effects of advertising versus direct experience when both search and experience attributes are present, Journal of Consumer Research, 21 (March), 708-718.

Yang, S.C. (1994), Innovative egg products and future trends in China, Egg Uses and Processing Technologies New Developments, Biddles Ltd., Guildford, pp. 46-62.

Yeung Ruth M.W. and Morris Joe (2001), Food safety risk Consumer perception and purchase behavior. British Food Journal, Volume 103, Issue 3, pp. 170-186.

Zeithaml, Valarie A. (1988). Consumer perceptions of price, quality, and value: A means-end model and synthesis of evidence, Journal of Marketing, 52 (July): 2-22.

Zikmund William G. (2000), Business research methods, Sixth edition, The Dry Press.

Zikmund William G. and Amico Michael D. (1996), Marketing, Fifth edition, St. Paul, Minnepolis: West Publishing Company, pp. 171-197.





Appendix A

Questionnaire

This questionnaire was designed to determine factors associating with the purchase intention for century egg of consumers who live in Bangkok. The researcher hopes to have your co-operation in responding to all items in this questionnaire.

1. Do you live in Bangkok area?

☐ Yes

☐ No (Discontinued)

2. Have you ever purchased century egg?

☐ Yes

☐ No (Discontinued)

Part I The perception about food safety concerns

Instruction: Please identify the level of your concerning about the hazards in food

(1 = Highly, 2 = Likely, 3 = Neutral, 4 = Rarely, 5 = Never thought about that)

Question	1	2	3	4	5
3. To what extent are you concerned about chemical hazards?					
4. To what extent are you concerned about microbiological hazards?					

Part II The perception about importance of product attributes

Instruction: Please identify the level of importance of product attributes of century egg as shown in no. 5-10.

(1 = Strongly important 2 = Important, 3 = Neutral, 4 = Unimportant, 5 = Strongly unimportant)

The product attributes of century egg	1	2	3	4	5
5. Appearance (Pink color of eggshell)					
6. Availability					
7. Nutrition					
8. Price					
9. Quality					
10. Usage					

Part III Purchase intention

Instruction: Please identify your possibility to purchase century egg

(1 = Highly, 2 = Likely, 3 = Neutral, 4 = Rarely, 5 = Never thought about that)

Question	1	2	3	4	5
11. To what extent do you intend to purchase century egg?					

Part IV Personal information

12. Gender

- ☐ Male ☐ Female

13. Age

- ☐ Under 19 years
☐ 20-29
☐ 30-39
☐ 40-49
☐ 50-59
☐ 60 years and upper

14. Occupation

- ☐ Students
☐ House wife
☐ Government employee
☐ State enterprise employee
☐ Business employee
☐ Business owner
☐ Others [Please specify]

15. Educational level

- ☐ High school or lower
☐ Certificate / diploma
☐ Bachelor degree
☐ Master degree or higher
☐ Others [Please specify]

แบบสอบถาม

เรียน ท่านผู้ตอบแบบสอบถาม

แบบสอบถามชุดนี้ได้ถูกออกแบบขึ้นเพื่อรวบรวมข้อมูลเกี่ยวกับปัจจัยที่มีผลต่อการตั้งใจซื้อไข่เยี่ยวม้าของคนไทยในเขตกรุงเทพมหานคร ข้อมูลที่ได้จากแบบสอบถามนี้จะนำไปทำการทดสอบสมมุติฐานของวิทยานิพนธ์ ผู้จัดทำขอความกรุณาท่านผู้ตอบแบบสอบถามตอบแบบสอบถามนี้ครบทุกข้อ เพื่อให้วิทยานิพนธ์ฉบับนี้สมบูรณ์ และถูกต้องตามทฤษฎี ผู้จัดทำหวังเป็นอย่างยิ่งว่าจะได้รับความร่วมมือจากท่าน

1. ท่านอาศัยอยู่ในจังหวัดกรุงเทพฯใช่หรือไม่

☐ ใช่

☐ ไม่ใช่ (ปิดการสัมภาษณ์)

2. ท่านเคยซื้อไข่เยี่ยวม้าหรือไม่

☐ เคย

☐ ไม่เคย (ปิดการสัมภาษณ์)

ส่วนที่ 1 กรุณาระบุระดับความกังวลของท่านเกี่ยวกับอันตรายที่เกิดจากอาหาร
(1 = มาก, 2 = ค่อนข้างมาก, 3 = ปานกลาง, 4 = ค่อนข้างน้อย, 5 = ไม่เคยคิด)

คำถาม	1	2	3	4	5
3. ท่านกังวลเกี่ยวกับอันตรายจากสารเคมีที่มีอยู่ในอาหารมากน้อยแค่ไหน					
4. ท่านกังวลเกี่ยวกับอันตรายจากเชื้อโรคที่มีอยู่ในอาหารมากน้อยแค่ไหน					

ส่วนที่ 2 กรุณาระบุระดับความสำคัญของคุณลักษณะของไข่เยี่ยวม้าในข้อ 5 -10
(1 = สำคัญมาก, 2 = สำคัญ, 3 = เฉยๆ, 4 = ไม่สำคัญ, 5 = ไม่สำคัญมาก)

คุณลักษณะของไข่เยี่ยวม้า	1	2	3	4	5
5. สีชมพูของเปลือกไข่เยี่ยวม้า					
6. การหาซื้อได้ง่ายตามท้องตลาด					
7. สารอาหารในไข่เยี่ยวม้า					
8. ราคา					
9. คุณภาพ					
10. ความหลากหลายของการนำมาปรุงเป็นอาหาร					

ส่วนที่ 3 กรุณาระบุความเป็นไปได้ที่จะซื้อไข่เยี่ยวม้าของท่าน

(1 = มาก, 2 = ค่อนข้างมาก, 3 = ปานกลาง, 4 = ค่อนข้างน้อย, 5 = ไม่เคยคิด)

คำถาม	1	2	3	4	5
11. ท่านมีความต้องการที่จะซื้อไข่เยี่ยวม้ามากน้อยแค่ไหน					

ส่วนที่ 4 ข้อมูลส่วนตัว

12. เพศ

☐ หญิง

☐ ชาย

13. อายุ

☐ น้อยกว่า 20 ปี

☐ 20 - 29

☐ 30 - 39

☐ 40 - 49

☐ 50 - 59

☐ 60 ขึ้นไป

14. อาชีพ

☐ นักเรียน / นักศึกษา

☐ แม่บ้าน

☐ พนักงานหน่วยงานราชการ

☐ พนักงานหน่วยงานรัฐวิสาหกิจ

☐ พนักงานบริษัท

☐ เจ้าของธุรกิจ

☐ อื่น ๆ (โปรดระบุ

15. ระดับการศึกษา

☐ มัธยมศึกษาตอนปลายหรือต่ำกว่า

☐ อนุปริญญา

☐ ปริญญาตรี

☐ ปริญญาโทหรือสูงกว่า

☐ อื่น ๆ (โปรดระบุ



Appendix B

Reliability

***** Method 1 (space saver) will be used for this analysis *****

-

RELIABILITY ANALYSIS – SCALE (ALPHA)

	Mean	Sad Dev	Cases
1. Q3	3.0000	1.3391	30.0
2. Q4	2.3667	1.2726	30.0

Reliability Coefficients

N of cases = 30.0

N of Items = 2

Alpha= .7703



Reliability

***** Method 1 (space saver) will be used for this analysis *****

RELIABILITY ANALYSIS – SCALE (ALPHA)

	Mean	Sad Dev	Cases
1. Q5	2.7667	1.3047	30.0
2. Q6	2.7333	1.0807	30.0
3. Q7	2.1333	.8996	30.0
4. Q8	2.6000	1.0034	30.0
5. Q9	2.0333	.9994	30.0
6. Q10	2.5667	1.1351	30.0

Reliability Coefficients

N of cases = 30.0

N of Items = 6

Alpha= .7049



