International Journal of Agricultural Technology 2013 Vol. 9(5): 1125-1136
Available online http://www.ijat-aatsea.com
ISSN 2630-0192 (Online)

Consumers' perceptions towards yogurt: A case study in Malang city, East Java province, Indonesia

Kusumastuti, A.E.[1], Nissapa, A.[2], Nugroho, B.A.[1] and Phitthayaphinant, P.[2*]

[1]Faculty of Animal Husbandry, Brawijaya University, East Java, Indonesia, [2]Department of Agricultural Development, Faculty of Natural Resources, Prince of Songkla University, Songkhla, Thailand.

Kusumastuti, A.E., Nissapa, A., Nugroho, B.A. and Phitthayaphinant, P. (2013) Consumers' perceptions towards yogurt: A case study in Malang city, East Java province, Indonesia. International Journal of Agricultural Technology 9(5):1125-1136.

Abstract Yogurt becomes attractive functional food in Indonesian market, especially for consumers who are concerned about their health. This research was conducted to explore socio-economic characteristics of consumers, and to examine consumers' perceptions towards yogurt in Malang city, East Java province, Indonesia. Four hundred consumers were selected as sample respondents. The age‒ranged from 15 to 60 years old from the urban and sub-urban areas of Malang city. The respondents were selected using the multi-stage sampling method. Primary data were obtained through a structured questionnaire survey. Descriptive statistics and independent sample t-test were applied for data analysis. The results revealed that most of the respondents were female, students, 21-25 years old, and with income ranging between Rp. 1,000,000-1,500,000 (approximately 104-156 USD) per month. The respondents' perception on marketing mix of yogurt was high. Variation in flavors, guarantee of halal-food label, lifestyle, price changes, ease of store location, and distance were statistically significant different in the two locations. The results are useful for yogurt producers to improve their marketing strategies for yogurt products to satisfy their consumers.

Key words: Perception, Yogurt, Marketing Mix

Introduction

At present, consumers believe that food contributes directly to their health (Mollet and Rowland, 2002) as the words "You are what you eat" (McKeith, 2004). Food is not intended to only satisfy hunger and provide necessary nutrients for human, but also to prevent nutrition-related diseases and improve physical and mental well-being. In addition, consumers have concerns for their diet in terms of health, convenience and safety aspects (Purnomo, 2010).

* **Corresponding author:** Phitthayaphinant, P.; **e-mail:** p_paratsanant@yahoo.co.th

Therefore, food must fit into current lifestyles providing convenience of use, good nutrition, good flavor and acceptable price.

Yogurt is produced by using active cultures of bacteria. It has currently became popular fermented dairy food product in the market (Robinson, 2007) because of the information that it contain beneficial bacteria (Hsu and Lin, 2006 quoted by Fuller *et al.*, 2004). Some of beneficial effects are: to prevent infectious diseases, enhance humoral immune responses by increasing immunoglobulin A*(IgA)* producing cells and stimulating antibody responses to some specific antigens (Khurana and Kanawjia, 2007). Moreover, yogurt has been identified as functional food and is scientifically recognized as having physiological benefits beyond those of basic nutrition to human health.

Indonesia is the fourth largest country in terms of population in the world (Bureau of Indonesia Statistic, 2010). Thus, it offers a promising market for yogurt products. Market trends of yogurt consumption in Indonesia shows that yogurt is presently gaining popularity in line with rising consumers' consciousness on diet and health concerns (Samabandhu, 2010). Malang city was selected as a research area due to its status as the second largest city in East Java Province, Indonesia, after Surabaya city. Malang city is famous with the slogan of "Tri Bina Cita" meaning education city, industrial city, and tourism city reflecting profile of Malang city economic potential (Bureau of Indonesia Statistic, 2010). Furthermore, Morey (2011) stated that Malang city is one of five cities in Indonesia and the highest milk producer in Java island. It has produced 146,121 ton of milk in 2010.

Increasing consumers' income and their consciousness on health have impacts on changing consumption patterns, not only in terms of food patterns and energy intake, but also in terms of perception. Several literatures, i.e., Solomon (1994); Schiffman and Kanuk (2007); Lake (2009) defined the perception as one of the factors affecting consumers' behaviors, especially in their process of purchasing decision on products and services. Undoubtedly, consumers' perception is critical to successful marketing and enhancing marketing value of yogurt products. The specific objectives of this research were (1) to explore socio-economic characteristics of consumers, and (2) to examine consumers' perceptions towards yogurt in Malang city, East Java province, Indonesia. The outcomes can be utilized by yogurt producers to improve their marketing strategies for yogurt products to satisfy their consumers.

Methods and materials

Population and samples

The targeted population were consumers, both yogurt buyers and non-buyers who lived in location near markets or yogurt stores in urban and sub-urban areas of Malang city. The urban areas included were three sub-districts namely: Klojen, Lowokwaru and Blimbing, whereas the sub-urban areas included Sukun and Kedungkandang sub-districts. These target consumers were in age ranging between 15-60 years old, both female and male. It was assumed that the consumers in this age range could absolutely give perceptions and opinions about the consumption of yogurt.

In 2009, a total population in Malang city who had ages range between 15-60 years old were 530,306 persons (Malang city in figures, 2010). The actual total samples were 400 consumers which were determined using Yamane (1973) formula and reserving sample error of 5 percent. The samples were divided into 300 consumers for the urban areas and 100 consumers for the sub-urban areas. Multi-stage sampling method was used in this research. They were stratified, quota, judgment, and accidental samplings, respectively. Every third eligible consumers either yogurt buyers or non-buyers in market or yogurt stores was selected for the interview.

Research tool

The research design was a cross-sectional survey. Primary data were obtained through structured questionnaires. Thirty structured questionnaires were pretested using Cronbach's Alpha. The Cronbach's Alpha values of marketing mix (4Ps) questions including product, price, place and promotion questions were 0.71, 0.70, 0.73, and 0.77, respectively. These Cronbach's Alpha values were in the acceptable reliability limit (Nunnally, 1978; Judd et al., 1991; Sekaran, 2003; Malhotra and Peterson, 2006; Campbell et al. 2007).

Data analysis

Descriptive statistics such as maximum, minimum, frequency, percentage, mean, and standard deviation were applied to describe socio-economic characteristics of the respondents and their perception levels. A five-point scale was used as an expression of consumers' perception level on yogurt marketing mix.The respondents were made to indicated their degree of agreement or disagreement (Verbeke and Viaene, 1998). The scale used ranged from "strongly disagree" with a score of 1 to "strongly agree" with a score of 5. Five intervals of score were 4.21-5.00, 3.41-4.20, 2.61-3.40, 1.81-2.60, and 1.00-1.80 representing the most, high, moderate, less, and the least perception levels, respectively. Independent sample t-test was also utilized to determine statistically significant differences of aspects of marketing mix in urban and sub-urban areas of Malang city.

Results and discussions

The results of this research are presented in the following sections

Socio-economic characteristics of surveyed consumers

Table 1 shows that the consumers in the urban and sub-urban areas were mainly female (64.66% and 63.00%, respectively). This indicated that more females are aware of their health than male consumers. They consumed yogurt in order to keep healthy and to control their diet. The result was consistent with the research of Menrad and Sparke (2006) who found that most consumers were female. Moreover, the researches of Phumeekun (2006), Varahakij (2006), Luangbamrung (2007), Pengpreecha (2007), Chaiuppala (2007), Nanawichit (2007), Soongkitboon (2007), Jantawee (2008) and Jaratanakorn (2009) found that most Thai consumers of yogurt were female.

The ages of respondents in the urban area were 15-20 years old (41.67%) with an average of 23 years old, whereas in the sub-urban area were 21-25 years old (26.00%) with an average of 29 years old. It was clear that teenagers dominate the urban yogurt market, while middle-aged consumers dominate in the sub-urban areas. This finding was related to location of yogurt stores in urban areas where most are located near academic institutions (colleges/universities). Therefore, the target consumers were teenagers.

The result was consistent with the research of Verbeke and Viaene (1998) who found that young consumers with less than 25 years old dominated behaviors towards yogurt in two regions of Belgium and Poland. Phumeekun (2006) found that most consumers' age ranged between 20-29 years old. Chaiuppala (2007), Nanawichit (2007) and Pengpreecha (2007) found that most Thai consumer ages were between 21-30 years old. Other researchers found varying age ranges among Thai consumers: 26-30 years old (Varahakij, 2006); 16-18 years old (Luangbamrung, 2007); and 16-30 years old (Soongkitboon, 2007).

Table 1. Socio-economic characteristics of surveyed consumer

Socio-economic characteristics	Urban area (n = 300)		Sub-urban area (n = 100)		Grand total (n = 400)	
	Number of person	Percentage	Number of person	Percentage	Number of person	Percentage
Gender						
Female	189	64.66	63	63.00	252	63.00
Male	111	35.34	37	37.00	148	37.00
Age (years)						
15-20	125	41.67	15	15.00	140	35.00
21-25	116	38.67	26	26.00	142	35.50
26-30	27	9.00	22	22.00	49	12.25
31-35	14	4.67	15	15.00	29	7.25
36-40	11	3.66	3	3.00	14	3.50
> 40	7	2.33	19	19.00	26	6.50
Max = 51 Min = 15 Average = 23 S.D. = 6.09						
Marital status						
Single	232	77.33	41	41.00	273	68.25
Married	68	22.67	59	59.00	127	31.75
Education level						
Junior high school	14	4.67	27	27.00	41	10.25
Senior high school	191	63.66	24	24.00	215	53.75
Diploma	27	9.00	26	26.00	53	13.25
University	68	22.67	23	23.00	91	22.75
Occupation						
Student	207	69.00	25	25.00	232	58.00
Private official	44	14.67	29	29.00	73	18.25
Businessman	29	9.66	16	16.00	45	11.25
Public official	11	3.67	20	20.00	31	7.75
Housewife	9	3.00	10	10.00	19	4.75
Income (Rp. Per month)						
≤ 500,000	29	9.67	13	13.00	42	10.50
500,001-1,000,000	157	52.33	18	18.00	175	43.75
1,000,001-1,500,000	49	16.33	19	19.00	68	17.00
1,500,001-2,000,000	19	6.33	25	25.00	44	11.00
2,000,001-2,500,000	21	7.00	17	17.00	38	9.50
> 2,500,001	25	8.34	8	8.00	33	8.25

More than half of urban consumers were single (77.33%). The result was consistent with the researches of Chaiuppala (2007), Nanawichit (2007), Pengpreecha (2007), Soongkitboon (2007) and Jantawee (2008) who found that most Thai consumers were single. In contrast, married consumers dominated in sub-urban areas (59.00%). This was because most of the urban consumers were students, while most of the sub-urban consumers are workers and married as well. Radam *et al.,* (2010) who explained that it is important to categorize the respondents' marital status because of its influence on their purchasing decision towards yogurt with regards to frequency of purchasing.

More than half of the urban consumers were senior high school graduates (63.66%), whereas most sub-urban consumers were junior high school graduates (27.00%). This was in line with location of yogurt stores where they were located near universities/colleges. Most of the urban consumers were students (69.00%). The result was consistent with the researches of Phumeekun (2006), Pengpreecha (2007) and Jantawee (2008) who found that most Thai consumers were students. On the other hand, most of the sub-urban consumers were private officials (29.00%). The result was consistent with the researches of Varahakij (2006), Nanawichit (2007) and Soongkitboon (2007) who found that most Thai consumers were private officials.

Most urban consumers earned income level ranging between Rp. 500,001-1,000,000 (approximately Rp. 9,616 = 1 USD) per month (52.33%), while most sub-urban consumers earned income level ranging between Rp. 1,500,001-2,000,000 per month (25.00%). This was due to their differences in occupations.

Consumers' perceptions towards yogurt

Table 2 shows that the respondents highly perceived product characteristics, price, place of product, and product promotion. The highest consumers' perceptions towards marketing mix of yogurt was its promotion ($\bar{x}$ = 4.09), followed by place of product ($\bar{x}$ = 3.74), product characteristics ($\bar{x}$ = 3.63), and price ($\bar{x}$ = 3.49).

With regards to product characteristics, the average perception level in the aspect of product quality was the highest both in urban areas ($\bar{x}$ = 4.29) and sub-urban areas ($\bar{x}$ 4.22). This indicates that the consumers in both areas perceived that product characteristics should be given most attention by producers. The result was consistent with the research of Jantawee (2008) who found that guarantee of quality symbol highly affected Thai consumers' purchasing decision towards yogurt. Besides, Jaratanakorn (2009) found that the product quality highly influenced Thai consumers' purchasing decision towards yogurt.

In terms of price, the average perception level with respect to price comparison with its quality was the highest ($\bar{x}$ = 3.76 (urban areas) and 3.85 (sub-urban areas)). This is due to the fact that most consumers have high regards on quality of product. The amount a consumer is willing to pay for the yogurt depends on the perceived quality. The result was consistent with the research of Phumeekun (2006) who found that reasonable price for its quality and quantity most affected Thai consumers' purchasing decision towards yogurt, while Jantawee (2008) found that such aspect highly affected them. Chaiuppala (2007) found that reasonable price for its quality highly affected Thai consumers' purchasing decision towards milk products. Also, Jaratanakorn (2009) found that reasonable price highly influenced Thai consumers' purchasing decision towards yogurt.

Regarding the place of product, the convenience of the place got the highest ($\bar{x}$ = 3.89) for urban areas whereas distance was the highest ($\bar{x}$ = 4.18) for sub-urban areas. This is consumers' lifestyles. Most of the consumers in the sub-urban area are busy working thus, they demand for convenience had increased. The result was consistent with the researches of Phumeekun (2006), Varahakij (2006) and Jantawee (2008) who found that convenience of place most affected Thai consumers' purchasing decision towards yogurt, whereas Jaratanakorn (2009) found that it highly influenced Thai consumers' purchasing decision towards yogurt. In addition, Chaiuppala (2007) found that easy access to products, convenience, and nearby to their homes highly affected Thai consumers' purchasing decision towards milk products.

In terms of product promotion, an average perception level in aspect of information about the store was the highest ($\bar{x}$ = 4.15) for urban areas, while attractive advertisement was the highest ($\bar{x}$ = 4.08) for sub-urban areas. Providing positive information about yogurt and making attractive advertisement could motivate consumers to be more interested and aware about their health thus, resulting to greater demand for yogurt. The result was consistent with the research of Chaiuppala (2007) who found that television advertisement highly affected Thai consumers' purchasing decision towards milk products. Furthermore, Phumeekun (2006), Jantawee (2008) and Jaratanakorn (2009) found that advertisement through media highly affected Thai consumers' purchasing decision towards yogurt.

Table 2. Consumers' perceptions level on marketing mix of yogurt and independent sample t-test results

Aspects of marketing mix	**Urban area (n=300)**			**Sub-urban area (n=100)**			**t-test**
	Mean	S.D.	Level of perception	Mean	S.D.	Level of perception	
Product characteristics:							
- Brand	3.73		High	3.90	0.95		0.95
- Product quality	4.29	1.04	Highest	4.22	0.86	High	-0.46
- Variation in flavors	3.98	0.84	High	3.80	0.97	Highest	-2.36*
- Packaging	3.72	1.01	High	3.58	1.03	High	0.44
- Information in product		1.06	High	3.65	0.99	High	-0.58
label	3.99	1.09	High	3.28	0.68	High	-3.92***
- Guarantee of Halal-food		0.99	Moderate	2.55	0.93	Moderate	-2.06*
label	3.76	1.14	Moderate	2.55	0.93	Less	-0.29
- Lifestyle	2.95	1.12				Less	
- Prestige	2.61						
Price							
- Perception of price							
(Price became main	3.60	1.17	High				1.11
factor in decision purchasing							
towards yogurt)	3.76	0.90	High				0.83
- Price comparison with	3.69	0.99	High	3.83	1.19	High	0.55
its quality	3.18	1.08	Moderate				0.65
- The price is beyond to				3.85	0.87	High	
reach	3.24	1.09	Moderate	3.83	0.97	High	-2.22*
- Yogurt price should be				3.30	1.16	Moderate	
cheaper than the							
price of yogurt in				2.82	1.17	Moderate	
market today							
- Price changes							
Place of product:							
- Ease of store location	3.80		High				-5.96***
- Ease of access	3.74	0.95	High	2.80	1.14	Moderate	0.81
transportation	3.61	1.01	High	3.87	0.88	High	3.34***
- Distance of store location	3.89	1.01	High	4.18	0.81	High	0.88
- Convenience of place	3.64	1.14	High	4.05	0.93	High	-0.32
- Service place covering		1.11		3.58	1.13	High	
areas							
Product promotion							
- Attractive advertisement	3.99		High				0.600
- Promotion/discount	3.75		High				-0.288
strategy		0.93	High	4.08	0.88	High	-0.255
- Competitive price (of	3.60	1.02	High	3.70	0.88	High	-0.335
rival)		1.08	Highest	3.55	0.96	High	-0.587
- Family/relatives	3.96	1.01		3.90	0.93	High	
recommendation		0.99		4.05	1.01	High	
- Information about the	4.15						
store							

Note: *** significant at 1% level, ** significant at 5% level, and * significant at 10% level

The results also revealed that with regards to product characteristics, variation in flavors, lifestyle, and guarantee of halal-food label were significantly different between urban and sub-urban areas. The result was consistent with the research of Chaiuppala (2007) who found that Food and

Drugs administration label mostly affected Thai consumers' purchasing decision towards milk products. In terms of price, there was only one aspect of price which was statistically significant between two locations. It was price changes. Regarding place of product, ease of store location and distance of store location were statistically significant between the two locations. This result is consistent with the research of Jantawee (2008). In terms of product promotion, there was no statistically significant difference between the two locations.

Conclusions and recommendations

At present, yogurt consumption becomes a trendy Indonesian lifestyle because yogurt has been identified as functional food providing health benefits. The research results revealed that most sampled consumers were young female students, and earned low income. The highest of consumers' perceptions towards marketing mix of yogurt was its promotion, followed by place of product, product characteristics, and price. Variation in flavors, guarantee of halal-food label, lifestyle, price changes, ease of store location, and distance were viewed differently by the consumers in the urban and sub-urban areas.

The results of this research led to some marketing mix strategies for yogurt products. Some of the strategies are;

Product strategy

The results indicated that an average perception level in aspect of product quality were the highest in both urban and sub-urban areas. Therefore, yogurt producers should focus quality development and/or innovation such as isolation of novel species of yogurt-producing bacteria, fine texture, more nutritional values. They should control yogurt production process to provide quality yogurt products for consumers. The results also indicated that variation in flavors was statistically significant. Consequently, yogurt products should be developed to have more diverse flavors. In addition, the unique taste of yogurt products could be a key success of its products itself, i.e., yakult. The taste of the yakult has been accepted by global consumers for a long time, especial for Indonesian consumers. Moreover, the results indicated that guarantee of halal-food label and lifestyles are important specially that the majority of Indonesian people are Muslim. Accordingly, the guarantee of halal-food label (including ingredients used in those products) is essential to consumers' acceptance of the product. Actually, it is not one of the strategies but it must be ascertained in the product.

Price strategy

The results indicated that consumers prefer quality products which are reasonably priced. As a result, yogurt producers should revise their prices and should make it clear and stable.

Place strategy

Yogurt producers should consider appropriate location of their stores. They should be near populated areas such as colleges and/or universities where there are full potential for target consumers. Furthermore, yogurt products should be adequately available at convenient stores (Seven-Eleven, ampm, Circle K, and Lawson), department stores (Yogya department store), and superstores (Carrefour, Giant, Makro, and Hypermart).

Promotion strategy

Yogurt producers should give positive information about yogurt and the benefits of yogurt consumption. This could be achieved by using pamphlets and/or public mass media such as television, internet, newspapers, magazines, and brochure. In addition, campaigns and attractively advertisement through appropriate channels should be done to provide useful knowledge about yogurt. Furthermore, a reliable and popular brand ambassador such as doctors, nutritionists, actors/actresses should be tapped to increase product reliability and motivate demand for yogurt.

Acknowledgement

This research was supported by Prince of Songkla University (PSU) graduate school and PSU-Brawijaya double degree program, Prince of Songkla University, Thailand. All respondents and literature citations are greatly appreciated and acknowledged.

References

Bureau of Statistics Indonesia (2010). Data sensus penduduk 2010. Jakarta: Bureau of Statistics Indonesia.

Chaiuppala, B. (2007). Marketing mix factors affecting consumers decision to purchase milk products in Mueang district, Lamphun province (Unpublished master independent study). Chiang Mai University, Chiang Mai. (in Thai).

Fuller, F., Beghin, J. and Rozelle, S. (2006). Consumption of dairy products in urban China: Results from Beijing, Shanghai, and Guangzhou. Retrieved on August 13, 2012, from http://iis-db.stanford.edu/pubs/21640/dairydemand_3cities_final_manuscript.pdf.

Jantawee, O. (2008). Consumer behavior and marketing factors influencing yogurt buying (Unpublished master independent study). Walailak University, Nakhon Si Thammarat. (in Thai).

Jaratanakorn, M. (2009). Attitude and factors affecting customer's buying decision of conventional yogurt and functional yogurt in Bangkok (Unpublished master independent study). Thammasat University, Bangkok. (in Thai).

Judd, C.M., Smith, E.R. and Kidder, L.H. (1991). Research methods in social relations (6th ed.). Fort Worth: Holt, Rinehart & Winston.

Khurana, H.K. and Kanawjia, S.K. (2007). Recent trends in development of fermented milks. Current Nutrition and Food Science 3:91-108.

Lake, L. (2009). Consumer behavior for dummies. New Jersey: Wiley Publishing.

Luangbamrung, A. (2007). Consumers' attitude, satisfaction and selection flavor behavior toward Dutchmill and CP-Meiji yogurt (Unpublished master project). Srinakharinwirot University, Bangkok. (in Thai).

Malang City in Figures. (2010). Bureau statistic of Malang city. East Java: Malang City in Figures.

Malhotra, N.K. and Peterson, M. (2006). Basic marketing research: A decision making approach (2nd ed.). New Jersey: Prentice-Hall.

McKeith, G. (2004). You are what you eat: The plan that will change your life. London: Michael Joseph.

Menrad, K. and Sparke, K. (2006). Consumers' attitudes and expectations concerning functional food. Retrieved on August 15, 2012, from http://www.wz-straubing.de/fachhochschule-weihenstephan/download/bericht_functionalfood_1.pdf.

Mollet, B. and Rowland, I. (2002). Functional foods: At the frontier between food and pharma. Current Opinion in Biotechnology 13:483-485.

Morey, J. (2011). Dairy Industry Development in Indonesia. Retrieved on August 13, 2012, from http://www.1.ifc.org/wps/wcm/connect/93f48d00470e3bf883ffd7b2572104ea/Dairy+Industry+Development-2011.pdf?MOD=AJPERES.

Nanawichit, M. (2007). Marketing factors affecting consumers' buying decision towards pasteurized milk in Lamphun municipality (Unpublished master project). Maejo University, Chiang Mai. (in Thai).

Nunnally, J.C. (1978). Psychometric theory (2nd ed.). New York: McGraw-Hill.

Pengpreecha, C. (2007). Factors influencing consuming behavior on Meiji yoghurt in Bangkok metropolitan area (Unpublished master project). Srinakharinwirot University, Bangkok. (in Thai).

Phumeekun, K. (2006). Marketing mix factors affecting consumers' decision to purchase drinking yogurt in Mueang district, Chiang Mai province (Unpublished master independent study). Chiang Mai University, Chiang Mai. (in Thai).

Purnomo, H. (2010). Modern technology in livestock products processing: An overview. Proceeding of International Seminar on Prospect and Challenges of Animal Production in Developing Countries in the 21st Century. 4-7 February 2010. East Java Brawijaya University.

Radam, A., Yacob, M.R., Bee, T.S. and Selamat, J. (2010). Consumers' perceptions, attitudes and willingness to pay towards food products with "no added Msg" labeling. International Journal of Marketing Studies 2:65-77.

Robinson, R.K. (2007). Manufacturing yogurt and fermented milks. International Journal of Dairy Technology 60:237-237.

Samabandhu, G. (2010). Aktivia news: *Deklarasi 1000 perempuan menjaga kesehatan pencernaan keluarga*. Retrieved on May 13, 2012, from http://www.activia.co.id/news.php?id=7.

Schiffman, L.G. and Kanuk, L.L. (2007). Consumer behavior (9th ed.). New Jersey: Prentice Hall.

Sekaran, U. (2003). Research methods for business: A skill building approach (4th ed.). New Delhi: John Wiley & Sons.

Solomon, M.C. (1994). Consumer behavior: Buying, having, and being (2nd ed.). Massachusetts: Prentice Hall.

Soongkitboon, P. (2007). A comparison of factors influencing consumer's purchasing Dutchie yoghurt and Foremost yoghurt in Bangkok metropolitan area (Unpublished master project). Srinakharinwirot University, Bangkok. (in Thai).

Varahakij, K. (2006). Demographic characteristics, marketing mix, lifestyles and behavior toward Meiji's yogurt of consumers in Bangkok (Unpublished master project). Srinakharinwirot University, Bangkok. (in Thai).

Verbeke, W. and Viaene, J. (1998). Consumer behavior towards yoghurt in Belgium and Poland: a survey in two regions. British Food Journal 100:201–207.

Verbeke, W. (2005). Consumer acceptance of functional foods: Socio-demographic, cognitive and attitudinal determinants. Food Quality and Preference 13:45-57.

Yamane, T. (1973). Statistics: an introduction analysis (3rd ed.). New York: Harper and Row.

(Received 22 November 2013; accepted 31 August 2013)