

# A Model Development of Thai Rice Label and Package for Health Conscious Group of Consumers on Social Media

Nirat Soodsang<sup>1</sup>

<sup>1</sup> Faculty of Architecture, Department of Art and Design, Naresuan University, Thailand

Correspondence: Nirat Soodsang, Faculty of Architecture, Naresuan University, Phitsanulok 65000, Thailand.  
Tel: 66-83-96-2450. E-mail: nirats@nu.ac.th

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## Abstract

The objectives of this research were to explore Thai rice consumption behavior and to develop the rice package as perceived by health conscious group of consumers on social media. The research methodology adopted mixed methods by means of marketing survey research and using research results to develop the product and package prototypes. The samples were 71 online-based consumers. The research tool was a questionnaire on general status of respondents and factors of their rice purchasing. Descriptive analysis was for the data analysis. Results revealed that the marketing mix factors affecting the consumers' decision to purchase rice comprised the following aspects, 1) product: rice cultivating areas, health benefits, and package, respectively; 2) price: best suit to rice quality, clear price tag, and saving price, respectively; 3) distribution channels: clean distribution sites, convenient transport, and enough car parking spaces, respectively; 4) marketing promotion: sale, discount coupon, and point-of-purchase displays, respectively. These are key issues to be considered. Regarding the label and logo design, the design work needed to present complete and clear information referring to essential quality of the product, and represent distinction and uniqueness. Product design needed to consider how to facilitate convenient transport, convenient use by consumers, i.e. opening-reclosing the package, and strength and firmness to effectively support the product, respectively.

**Keywords:** Label, rice package, social media

## 1. Introduction

Rice has long been the main meal of Thai people. Thai farmers grow rice to serve Thai people nationwide and also export rice to countries worldwide. Rice is considered revered as our Thais' spiritual. Every single rice grain we have eaten signifies not only Thai-ness spiritual and Thai family, but also our social, economic, cultural, historical, and religious features. The health trend for people's dining at home now regains its preference for it is saver and better for health. Accordingly, home delivery business continues to grow as we sometimes like to have some other new and different dishes more at home, while cooking classes on media are available at home with further development and updated reports. Today, new generations are educated on how to prepare health food with good taste since this body of knowledge can provide life-long benefits. Integration of technologies to access websites or for information search has been increasing, more health related websites and blogs are available, and competitions on social media has become more intense. Food label plays more important role in presenting about foods as guided by nutritionists. In recent years, the eco-trend or environmental trend has been more popular, the focus is thus on goods and services friendly to the environment or nature (Eco-commodity).

Development of label and package considers a number of problems observed in previous package designs. They did not serve full functionality with such as the problem of internal structure to protect goods. They also did not provide expected marketing advantages as they failed to represent the local uniqueness for distribution, and less attractive to motivate consumers' decision to purchase the product.

The present research was aimed to develop the rice package with moisture barrier. Rice package is required to prevent water vapor transmission from surrounding air, that is, the water vapor transmission rate should be low. The rate depends on the type, quality and thickness of materials used to produce packages. Moisture causes physical food spoilage to dried food such as caking of powder food that prevents them from flowing freely, or sugar syneresis, and chemical food spoilage such as rancidity as water causes hydrolysis. Oxygen absorber can also be used to absorb existing oxygen within the package before sealing, which will permeate the package

during storage. Another consideration is that adequate rice package needs to be resistant to force and impact as the texture of dried food is normally hard, brittle, and breakable, with pointed part possibly penetrate the container. The researcher was interested to investigate and develop a guideline for graphics and package design to make it attractive to those who expose to the product and hence recall it; and to analyze for a solution on the use of appropriate material and process.

## 2. Research Objectives

- (1) To explore Thai rice consumption behavior of the health conscious group of consumers on social media.
- (2) To develop the label and package for Thai rice as perceived by the health conscious group of consumers on social media.

## 3. Methodology

This research employed 2 steps as in the following details.

**Step 1:** A survey of Thai rice consumption behavior of the health conscious group of consumers on social media through online system. The samples were 71 questionnaire respondents, and the data obtained was then analyzed for their rice consumption behavior. Data collection had been undertaken for 4 weeks in February 2016. The research tool took on a 2-part-questionnaire with part 1 on the background information of respondents focusing on their consumption behavior and choice of good and service; and part 2 on the marketing mix factors that affected the consumers' decision to purchase rice, including the importance of label and package of rice as perceived by the consumers. The approaches to data analysis included descriptive statistics, frequency, percentage, mean, and standard deviation.

**Step 2:** Development of label and package prototypes. This step involves the followings. 1) Setting the objective: For graphics and package design, it requires the knowledge and exploration of package positioning of competitors in the market, UPS (Unique Selling Point) of the product to be advertised on the package. 2) Planning: The factors derived from the initial analysis and data were utilized for planning to improve and develop the package uncommon and different from those of other competitors.

There are steps to plan for labeling and package design, the planning process starts at the purpose and limitations, which contains the following components.

- 1). Planning: scheduling, determining of intended outcome from each step, details of branding, and people in charge of each step.
- 2). Data collection: information on marketing, situation, and competition, strength, weaknesses, opportunities, and threats (SWOT), selling point based data, needs of the target groups, consumers' behavior, new technologies on packaging, packaging system and machine.
- 3). Sketch design: relevant creativity development, preparation of 3 – 5 sketches, and 2 – 5 prototypes.
- 4). Prototype analysis and refinement: technical feasibility analysis, analysis for responsiveness to the target's need, selection of acceptable prototype.
- 5). Graphic design: selection of materials for making samples, developing graphic design, including brand, and logo.
- 6). Design management: Starting from contacting package material factories, controlling the production to ensure intended design, preparing order specification to enable the production of designed package, and following-up if the designed package meets its purposes and organization's objectives.

## 4. Results

The analysis of opinions of 71 consumer respondents revealed their general status as follows: 1) 33.8 % male and 66.2 % female; 2) below 20 years of age (1.4%) in the ranges of 20-30 years (49.3%), 31-40 years (31%), 41-50 years (12.7%), 51-60 years (5.6%); 3) single (77.5%), married (21.1%), divorced/separated (1.4%); 4) diploma degree (1.4%), bachelor degree (38%), higher than bachelor degree (60.6%); 5) school /university students (39%), government/state enterprise officers (42.3%), private company worker/employee (8.5%), self-employed/trade (5.6%), general hired worker (2.8%); 6) average monthly income ≤ 10,000 baht (31%), 10,001 – 20,000 baht (21.1%) 20,001 – 30,000 baht (18.3%), 31,000 – 40,000 baht (19.7%), >40,000 baht (9.9%); 7), average monthly family income ≤ 20,000 baht (9.9%), 20,001 – 30,000 baht (9.9%), 30,001 – 40,000 baht (9.9%), 40,001 – 50,000 baht (22.5%), ≥50,001 baht (47.9%). The number of co-residing members: 1-2 (23.9%), 3-4 (52.1%), ≥5 (23.9%). The number of time of household cooking: 1-3 times/week (43.7%), 4-7 times/week (19.7%), >7 times/week (32.4%), none (4.2%).

The data also suggested the followings, rice purchasing behavior of consumers: had ever purchased (90.1%), had never purchased (9.9%); type of rice purchased: packed rice (59.4%), weighted/scooped rice (15.6%); whole sacked rice (23.4%), others (1.6%). Major reason for rice purchasing decision: convenient purchase and transport (67.2%), cheap price (31.3%), clean/new (45.3%), a variety of rice to choose from (35.9%), quality standard assurance (42.2%), others (4.7%). Objectives of purchase: consumption only (98.4%), consumption and cooking for selling (1.6%). Type of rice commonly purchased: jasmine rice (82.8%) white rice (17.2%) waxy rice (10.9%), brown/coarse rice (28.1%), mixed types of rice (3.1%), special kind of rice (vitamin supplemented rice, toxic-free rice, herbal rice) (3.1%) rice-berry (28.1%) jasmine rice (10.9%) organic rice (1.6%). Average price per kilogram of rice purchased: 15-20 baht (3.1%), 21-25 baht (6.3%), 26-30 baht (9.4%), 31-35 baht (29.7%), 36-40 baht (18.8%),  $\geq 41$  baht (32.8%). Average amount of rice per time of purchase: 1-3 kg./time (26.6%), 4-6 kg./time (34.4%), 7-10 kg./time (14.1%), 11-15 kg./time (12.5%),  $\geq 16$  kg./time (12.5%). Frequency of rice purchase: 1-2 times/month (81.3%), 3-4 times/month (15.6%),  $\geq 5$  times/month (3.1%). Most common site of rice purchase: rice shop at occasional/daily market (9.3%), convenient store (e.g., Seven-Eleven, Family Mart) (4.7%), grocery/small retail shops (6.4%), retail/wholesale shops (31.3%), department store/modern trade store (e.g., Big-C, Lotus, Tops) (45.3%), others (3.1%), advertising and public relations media affecting the choice to purchase rice: mobile AD car (3.1%), advertisements on TV (76.6%), advertisements on the internet/social media (35.9%), brochure/flyer/leaflet (29.7%), billboard (21.9%).

Marketing mix factors that affect the consumers' choice to purchase rice included the following aspects, each with elements ranked by importance level, i.e. 1) Product: rice cultivation area, health benefits, and package, respectively. 2) Price: price suitable to rice quality, clear price tag, and saving price, respectively, 3) distribution channels: clean distribution sites, convenient transportation to distribution site, enough car parking spaces, respectively; 4) marketing promotion: sale, discount coupon, point-of-purchase displays, respectively, as shown in Table 1.

The label and logo should be able to present complete and clear information, be able to refer to the essential quality of the product, and have distinction and uniqueness, respectively. The package should be convenient to transport, convenient for the consumers to use, i.e. in opening and reclosing the package, and has strength or firmness to support the product, as shown in Table 2.

Table 1. Marketing mix factors affecting the consumers' choice to purchase rice.

No.	Aspects	(n=64)		Interpretation
		$\bar{X}$	S.D.	
1. Product				
1.	variety of rice to choose from	3.65	1.29	High
2.	color of rice grain	3.92	1.06	High
3.	quality of rice	4.13	1.16	High
4.	taste of rice	3.10	0.93	Moderate
5.	rice cultivating area	4.32	0.94	High
6.	cleanliness of rice	3.41	1.01	Moderate
7.	product label	3.85	1.10	High
8.	package	4.14	1.09	High
9.	health benefits	4.16	1.00	High
10.	quality standard assurance	3.34	1.16	Moderate
Total		3.82	1.07	High
2. Price				
1.	saving price	3.43	0.94	Moderate
2.	price suitable to rice quality	4.26	0.91	High
3.	credit card payment service	2.28	1.22	Low
4.	purchase on credit	2.16	1.20	Low
5.	clear price tag	4.19	1.03	High
Total		3.26	1.06	Moderate

3. Distribution channels				
1.	convenient transportation to distribution site	4.22	0.91	High
2.	available home delivery	3.28	1.24	Moderate
3.	arrangement of goods in specific categories	3.77	1.20	High
4.	shopping baskets and trolleys service	3.82	1.19	High
5.	enough car parking spaces	4.07	1.07	High
6.	clean distribution place	4.41	0.90	High
Total		3.92	1.08	High
4. Marketing promotion				
1.	flyers distribution to introduce new product	2.80	1.13	Moderate
2.	reducing price	3.83	0.97	High
3.	giving discount coupon	3.55	1.01	High
4.	point-of-purchase displays	3.43	1.03	High
5.	sweepstakes	2.94	1.11	Moderate
6.	membership for discount	2.97	1.21	Moderate
7.	values or point additions	3.02	1.19	Moderate
8.	stand-by product consultant	3.25	1.07	Moderate
Total		3.22	1.09	Moderate

Table 2. Importance of label and logo, and package

No.	Aspects	(n=64)		Interpretation
		$\bar{X}$	S.D.	
1. Label and logo				
1.	concise, brief, easy to remember	4.00	1.14	High
2.	distinctive and unique	4.13	1.21	High
3.	referring to essential quality of products	4.17	1.16	High
4.	attractive, striking	4.05	1.05	High
5.	presenting complete and clear information	4.23	1.04	High
Total		4.116	1.12	High
2. Package				
1.	fine 3-dimension-proportion and size	3.73	1.13	High
2.	strong or firm to support the product	4.22	1.08	High
3.	easy to pack	4.10	1.04	High
4.	convenient to transport	4.34	0.96	High
5.	convenient for consumer to use, i.e. opening and reclosing	4.31	1.13	High
Total		4.14	1.068	High

The outcome from the development of label and package design for Thai rice as perceived by the health conscious group of consumers on social media was obtained as a 1-kg package size for jasmine rice, jasmine brown rice, and rice-berry, with the primary package as vacuum sealed and the secondary package as cardboard box intended for sales promotion.

The package for each kind of rice were distinguished by different colors, i.e. brown for brown rice, green for jasmine rice, and purple for rice-berry. On the label, important information that should be known about comprised 1) manufacturing date marked by "MED", 2) expiration date marked by "EXP", 3) information on ingredients of the product, 4) manufacturer and distributor marked by "manufactured and distributed by...", 5) business registration number by type of product, 6) net quantity of package size, and 7) nutritional information panel.



Figure 1. Primary package for 1 kg. of rice sealed by vacuum process using side-folded polypropylene plastic bag effectively keeping rice quality in good condition for longer than 6 months



Figure 2. Secondary package made from cardboard in 4-color printing.

## 5. Discussion

According to the research results, the marketing mix factors that influenced the consumers' decision to purchase rice consisted of 4 aspects, namely 1) product: rice growing area, health benefits, and package, respectively; 2) price: price suitable to rice quality, clear price tag, and saving price, respectively; 3) distribution channels: clean distribution site, convenient to transport to distribution site, and enough car parking spaces, respectively; 4) marketing promotion: reducing price, discount coupon, and point-of-purchase displays, respectively. These findings agreed to previous research that investigated factors influencing consumers' decision to purchase organic jasmine rice and found that psychological, product, price, and distribution channels factors produced high effect on such decision. Marketing promotion, cultural, and social factors affected moderately on the decision to buy organic jasmine rice. The problems related to the decision to buy organic jasmine rice included the lack of trust in rice quality, considerably high price comparing to those common rice in the market, few shops or agents, and few advertisements on media. Regarding factors that influenced the decision not to buy organic jasmine rice as reported by 283 respondents who used to buy it but currently give up and those who had never bought it, it was found that the distribution channels, marketing promotion, and psychological factors affected highly on their decision not to buy it, while product, price, cultural and social factors displayed moderate effect (Yenpiem & Aroonsrimorakot, 2012). With respect to label and logo design in the present research, the design work needed to give complete and clear information, indicate essential quality of the product, and looked distinctive and unique, respectively. The design also needed to consider how to enable convenient transport, convenient use by the consumers, i.e. opening and reclosing the package, and needed to be strong and firm to support the product. As suggested by Kongseree, Swangjit, Mongkonbanjong, Wongpiyachon (1996) In keeping rice quality, the development of package to preserve rice quality for exportation likely use polypropylene, polyethylene and cardboard box. Most of the rice being packed were good grade types such as 100% jasmine rice, white rice and waxy rice. The problems encountered were insect infestation and grain deterioration. In their development of package to keep rice quality, 2 sets of rice were investigated. For the first set, 2 kg. of milled rice were packed in each of the polypropylene and polyethylene, laminated nylon, and laminated aluminum foil bags. The bags were sealed with 3 methods, i.e. normally sealed, vacuum sealed at -0.9 bar, or sealed with oxygen absorber inside. For the second set, milled (normal) rice and polished jasmine rice were packed in the same way above. The analysis was conducted on the change of properties and quality of uncooked and cooked rice at

1-month interval for a period of 6 months. They found that insect infestation occurred with rice in the polypropylene and polyethylene bags after one month storage, and the insects grew in number if the rice was kept longer, resulting in cooked rice producing bad smell at 4 -month period, and even stronger after that. To prevent this problem, it is thus necessary for the polypropylene and polyethylene packages to expose to phosphine fumigation prior to exportation and use marketing system for the rice to be sold out by 4 months. Packing rice in laminated nylon, and laminated aluminum foil bags and sealing with vacuum system or oxygen absorber inside can prevent the growing of insect, bad smell, and the loss of rice aroma. Insect infestation was less in polished rice than milled rice. These packages are suitable for rice exportation to countries where chemicals are prohibited in rice production such as for organic rice. Development of material production should be promoted for domestic production of rice package as it will help reduce cost. Boonmark and Utthi (2013) pointed out that on the label of rice bag, the most important information is the word "Organic Brown Rice" representing the product's uniqueness. The most common package was 1-kg vacuum sack with colorful label and pictures. Considering the influence of product value creation that affected brand royalty, previous findings demonstrated that creating product value affected positively on brand royalty. For entrepreneurs, the quality standard assurance in combination with attractive and modern style of rice package, and clean, safe rice grains without foreign matters will contribute to brand royalty of consumers (Pattarapunsin & Jadesadalug, 2014). Investigation of the relationship between marketing mix factors (4Ps) that affected rice product buying behavior of consumers in Bangkok observed that factors on product and distribution channels were related to such buying behavior. In addition, product and marketing promotion were related to buying behavior with respect to the price of rice product (Atchasaï & Worasinchai, 2012). However, cost management is also important in producing product label and package; the cost should not be too expensive, usually determined at 10% of product value. Strategic cost management and successful performance should be focused. Applying cost management will guide the development and improvement, and preparing for properly handling the changing situations. This will result in long-term profits and competitive capacity (Prachuabsuk, 2015). This research offered the samples of label and package of rice product for commercial utilization. It can be extended to those agriculturists who grow rice for sale and promote their collective activities in marketing promotion for raised income of their groups, thus giving the sense of pride in their own products and also more choices for consumers. It provided guidelines to agriculturists in the distribution of their rice products. They can exchange and share marketing business knowledge, and ensure that rice quality meet the agricultural quality standards, and that rice were well selected to serve those health conscious group of consumers on social media and other channels as well.

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