

Development of Product and Packaging Label for Kao-Taen (Rice Cracker) of the Agro-group of Kao Kwang Tong Sub-district, Nong Chang District, Uthaitхани Province

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Abstract

This research was aimed to develop the product and packaging label for Kao-Taen (rice cracker) of the agro-group of Kao Kwang Tong sub-district, Nong-Chang district, Uthaitхани province. It explored and developed Kao-Taen product using materials within the community, and evaluated the product design and packaging label by specialists.

The research results suggested the outcome of product development, with Kao-Taen of 3 cm. in diameter and 1.5 cm. thick, the size allows for more convenient consumption by consumers. The design of packaging label in style 3 with mean 4.92 was considered most appropriate. The key factors contributing to the community product development included available materials in the community, community's self-capability, presentation of community uniqueness, and low cost.

Keywords: development of rice cracker, rice cracker packaging label

1. Introduction

The agro-group of Kao Kwang Tong sub-district, Nong-Chang district, Uthaitхани province, as an organic agro-group, is currently a center of local sage and wisdom. It serves to transfer the knowledge to general people about how to do agriculture that enables self-reliance and strengthen self-capacity of agriculturists and their family. The organic rice varieties produced here are Sin-Lhek, Riceberry, Hom-Nil, and Luem-Poa waxy rice. Herbal plants include thunbergia, bustard cardamom, lemongrass, turmeric. The fishes raised in the community pond are used for making fermented fishes called Pla-Rah. The local biodiversity provides rich sources of raw materials for extended development of value added production of other processed products to expand for broader marketing channels. This is in line with the Eleventh National Economic and Social Development Plan (B.E. 2555-2559) of Thailand which specified the strategy for strengthening the agricultural sector, food and energy security. The objectives under this strategy are to empower the agricultural sector to become an efficient production base that can produce food and energy with value, quality, high standards and remain environmentally sound, with the production responding to market demands, fair trade and affordable prices, while food security is the first priority; to improve the quality of life, job security and income in the agricultural sector, strengthen agricultural households and organizations to be self-reliant while practicing sustainable agriculture; and to promote the participation of farmers and local communities to support food and energy security and become self-reliant.

To create the value-added by utilizing raw materials available within the locality is a way the community can achieve sustainable self-reliance. This is done by processing these materials into other products such as Kao-Taen (rice cracker) and increase marketing channels for the community group product, along with packaging development. Pornsanong Wongsingthong (2007, pp. 10-11) described that the objectives of research, development, and product design are to explore and expand the scope of knowledge, develop new product, develop production process, improve existing product and process, seek ways to gain additional benefit from existing products, search for technical information for the organization, and analyze the products of competitors. It agrees to the concept of Udomsak Saributr (2006, p. 37) suggesting that new product development involves

several key factors. The product must be better than those of other competitors. The product must be made to gain more preference. If the success of new product focuses on the criteria or specification, it should consider the marketing direction. The success of new product by making it somewhat different might be better than damaging the product itself during product development. Nirat Sudsang (2005, p. 45) referred to product development as the basic development for which at this stage is the function of research and development plan, the test of product functionality, to examine if the product is safe. For example, to identify the taste and safety of product, it has to be tried out prior to the committee's approval. Tested by consumers can also be done by either having them attending in the test or distributing to them to try it.

As stated earlier in the National Economic and Social Development Plan, and about the concept of product development by processing raw materials available within the community to make Kao-Taen product so as to promote and develop the agro-group for their sustained self-reliance. In the research and development process, the limitations of the group involve the lack of product uniqueness, the lack understanding about the criteria for commercial-based quality and standard assessment, and the lack of product design that satisfies marketing demands or various groups of consumers. These had led to unsuccessful distribution of the product, while it failed to quality and standard control, and lacked of capacity building in development of product design and packaging label.

2. Research Objective

To develop Kao-Taen product and packaging label of the agro-group of Kao Kwang Tong sub-district, Nong Chang district, Uthaithani province.

3. Conceptual Framework

The present conceptual framework adopted the criteria for selecting Thailand's One Tambol One Product (OTOP) of instant food category in dessert type defined by the National OTOP Administrative Board (2012, p. 33). The processed product along with packaging label were designed as follows.

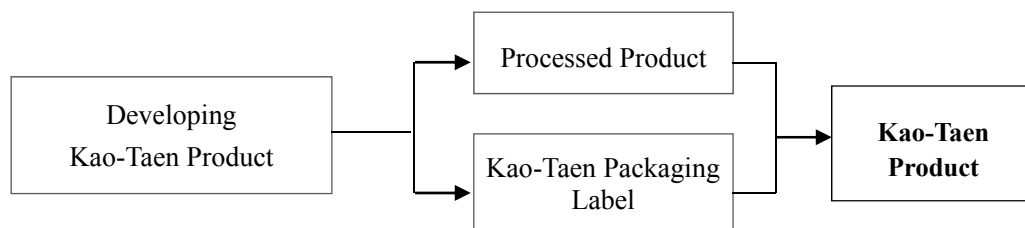


Figure 1. Procedures of the research framework

4. Research Scope

The scope in developing Kao-Taen product and packaging label of the agro-group of Kao Kwang Tong sub-district, Nong Chang district, Uthaithani province, includes population and samples.

Population:

Purposive sampling was carried out with the agro-group of Kao Kwang Tong sub-district, Nong Chang district, Uthaithani province as they represent the center for local sage and wisdom and an organic agro-group. Members of this group are:

1. Mr. Somsak Yimpuck
2. Mrs. Jirawan Yimpuck
3. Mrs. Panom Tongnongboa
4. Mrs. Sommai Poomtong
5. Mrs. Somjai Vasitthep

Samples:

The samples in the evaluation of Kao-Taen product and packaging label development are specialists of 3 aspects.

1. Design specialist
2. Food specialist
3. Food processing specialist

The scope of Kao-Taen product and packaging label development:

This research identified the scope for processing rice product on the use of raw materials available within the community based on the need of community groups, focusing on development of Kao-Taen product.

5. Definition of Terms

1. Development of Kao-Taen product and packaging label refers to the use of resources in the community for processing as Kao-Taen, so as to create alternative channels to earn extra income for the group.
2. Agro-group refers to the group of self-reliant agriculturists of Kao Kwang Tong sub-district, Nong Chang district, Uthaithani province, as the center for local sage and wisdom and an organic agro-group.
3. Evaluation of product and packaging label refers to the evaluation by specialists on the group's logo design to be used on Koa-Taen package.

5.1 Research Tools

This research with the agro-group of Kao Kwang Tong sub-district, Nong Chang district, Uthaithani province, employed a tool for specialists' evaluating on the designs of product and packaging label.

6. Research Summary Results

The development of product and packaging label for Kao-Taen of the agro-group of Kao Kwang Tong sub-district, Nong Chang district, Uthaithani province was intended to increase marketing channels for community's products either as gift/souvenir for visitors or as goods for selling. The figure below shows activities in practical session to make Kao-Taen product. The research results were summarized in 2 aspects, i.e. development of Kao-Taen product, and development of packaging label.



Figure 2. Practical session to make Kao-Taen product

The outcomes of the development of Kao-Taen product in practical session involve making Kao-Taen by using resources available in the community for extended development, new style of shaping Kao-Taen, and how to fry Kao-Taen without spoiling its shape. The group try to make Kao-Taen and distribute to others to taste it and obtain their feedback on the taste.







Table 1. Development of Kao-Taen product

Group	Practice of product development	Development Stage 1	Development Stage 2	Development Stage 3	Development Stage 4
Agro-group of Kao Kwang Tong sub-district, Nong Chang district, Uthaithani province	Kao-Taen with watermelon juice recipe	Try-out making Kao-Taen with watermelon juice recipe	Kao-Taen mixed with grains	Kao-Taen with herbs recipe	Kao-Taen with different recipes - lemongrass - - Tumeric - Thunbergia - Bustard Cardamom - Fermented fish

In developing Kao-Taen product of the agro-group of Kao Kwang Tong sub-district, Nong Chang district, Uthaithani province, they began learning how to make Kao-Taen with watermelon juice recipe, later they tried

making Kao-Taen mixed with grains, next with other herbal recipes such as mixing with juices from lemongrass, turmeric, thunbergia, bustard cardamom, and then with fermented fish recipe. This community offers sufficient sources of materials to be used for extended development of Kao-Taen.

Table 2. Raw materials for making Kao-Taen product of the agro-group of Kao Kwang Tong sub-district, Nong Chang district, Uthaithani province

Pictures	Details
	Availability of natural materials for the agro-group of Kao Kwangtong. Richness of herbal plants sufficient for further extended development of Kao-Taen product.
	Bustard Cardamom can add to new recipe for extended development of Kao-Taen.
	Thunbergia can add to new recipe for extended development of Kao-Taen.
	Thunbergia juice recipe for making Kao-Taen.
	Lemongrass juice recipe for making Kao-Taen .
	Tumeric juice recipe for making Kao-Taen.

The availability of natural materials for the agro-group of Kao Kwang Tong includes those herbal plants that are plenty enough for making and extending the development of Kao-Taen product including such as lemongrass, turmeric, thunbergia, and fermented fish as ingredients of Kao-Taen.

In the design for developing Kao-Taen product, the researcher modified to shape Kao-Taen in the right size for one bite at a time considering the convenience of picking and the bite-size, as shown below.

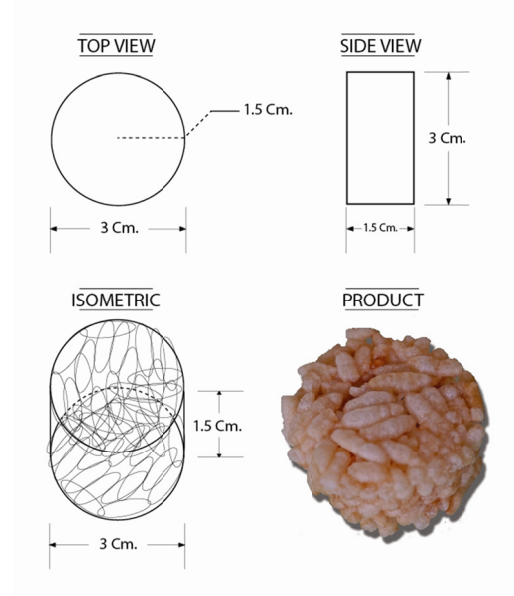


Figure 3. The size of Koa-Taen product

As seen in Figure 3, Kao-Taen being developed is 3 cm. in diameter, and 1.5 cm. thick, the bite-size allows for more convenient consumption by consumers. A summary result of packaging label development by the agro-group of Kao Kwang Tong showed that they applied the distinctive feature of a local significant place, that is, the story of Tak Bat Devo ceremony of Kao Sakreakrung, coupled with the name of Kao Kwang Tong as the concept for packaging label design. This concept rises from the need of the agro-group of Kao Kwang Tong themselves. The design steps are demonstrated below.



Figure 4. The concept of packaging label design for Kao-Taen by the agro-group of Kao Kwang Tong

A summary result of evaluation on the development of Kao-Taen packaging label of the agro-group of Kao Kwang Tong, based on the following 3 logos evaluated by specialists.



Figure 5. Packaging label for Kao-Taen product

Table 3. Result of evaluation on the designs of packaging label for Kao-Taen product (N=3)

Logo Design	\bar{X}	S.D.	Appropriateness
Design 1	4.33	0.49	High
Design 2	4.08	0.51	High
Design 3	4.92	0.29	Highest

Table 3 presents the result of analysis on the designs of packaging label for Kao-Taen product of the agro-group of Kao Kwangtong, Uthaitхани province, suggesting the design 3 with mean 4.92 as most appropriate.



Figure 6. Kao-Taen product of the agro-group of Kao Kwangtong sub-district, Nongchang district, Uthaitхани province

In conclusion, the development of product and packaging label of the agro-group of Kao Kwang Tong sub-district, Nong Chang district, Uthaitхани province utilized materials available within the community for value added production. The shaping of Kao-Taen is in bite-size convenient to eat. The logo represents Kao Kwangtong sub-district. The packaging boxes are easy to buy in the locality. The investment cost is low for the product and it can be actually sold.

7. Discussion

Based on the result on the development of product and packaging label of the agro-group of Kao Kwang Tong sub-district, the size of Kao-Taen product is 3 cm. in diameter and 1.5 cm. thick, allowing for convenient consumption by consumers. Key factors contributing to the development of community products are the availability of materials within the community, self-capacity of the community groups, representation of community uniqueness, and low cost. It follows the guidelines introduced in Thailand's Eleventh National Economic and Social Development Plan (2016, p. 88) with respect to the strategy for strengthening agricultural sector, food and energy security, with an aim to promote strong and self-reliant agricultural sector.

The packaging label for Kao-Taen product of the agro-group of Kao Kwang Tong applied the distinctive feature of a local significant place about the story of Tak Bat Devo ceremony of Kao Sakreakrung, in combination with the name of Kao Kwangtong as the key concept to design packaging label. This concept came from the need of the agro-group of Kao Kwangtong themselves. This is consistent with the concept suggested by *Araya Srikanlayanabuth* (2007, p. 36) that before working on the design, the designer should realize the need of product owner. The design of Kao-Taen packaging label employed symbolic communication to convey the meaning, that is, with the background of Kao Sakraekrung and a deer at the front, a simple design. It corresponds to Kamchorn *Soonpongsri* (2015, p. 507) referring to Andy Warhol (1930-1987) one of the leading Pop artists who used a simple layout of elements. It also agrees to *Chalood Nimsamer* (2014, p. 412) who suggested that creativity is to create a sign to convey meaning among human, we use simple and understandable signs in which the layout of elements is simple.

In developing Kao-Taen product and packaging label of Kao Kwang Tong's agro-group, they desired to further the development of materials in the community in order to create jobs during the time after the harvest season. They made a choice of Kao-Taen product since the raw materials, instrument, and time are all available, and it is low cost as well. The factors or conditions for the group to develop the product can be described by individual factors, i.e. their main job was done; taking less time; minimum cost, and importantly, increased channels to generate income. For the development of packaging label, it must be simple, and selling the product is possible, with low cost. The success of product depends on several factors including the taste, design, and package of Kao-Taen that satisfy the demand of consumers, while keeping the cost low. It accords with *Chonlatis Darawong* (2015, p. 40) pointing out that the design needs to be attractive and safe in handling and functioning, easy understandable in use, easy to install, easy to store and maintain, save production cost, and production is possible. *Pornsanong Vongsingthong* (2007, p. 109) stated about human behavior towards a product such as picking, catching, touching a product. For functionality, the design should relate between the product and user. It was found that in designing the logo for Kao-Taen product, the agro-group focused on its convenience. *Naray Khorjitmete* (2016, p. 56) cited that how to select materials and design attractive packaging depends on the objective of product owner, short time, minimum cost, and increased channels of income generation.

8. Recommendations

According to the development of product and packaging label for Kao-Taen of the agro-group of Kao Kwang Tong sub-district, Nong Chang district, Uthaitani province, the following recommendations are provided for utilization of research results.

1. Community development along with product development is a way to mobilize the sustained development of the community since it allows for community-based learning exchange between vocational groups within the community for what they need to learn in common.
2. The outcome of processed Kao-Taen product using the raw materials in the community can be practically utilized and applicable to other community groups of similar type.
3. The design of packaging relevant to community situation under the requirements of groups to start processing new product should consider the design at low budget to help avoid the loss.

9. Recommendations for Further Research

1. Further research should develop the quality of product at higher level of standard such as upgrading the star quality or food quality standard along with packaging development.
2. The research result should be used to extend the development particularly in marketing promotion of community products for broader impact.
3. Further research should bring the knowledge obtained to create community business for strengthening community product.

4. For further research, other than the objective focusing on the work piece, it is also particularly important to promote community network and positive relationship between the government/non-government sectors and the community.

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