

## Marketing Plan of New Product Development Case Study of Processed Butternut Squash Products

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### Abstract

Butternut squash is rich in nutrients; thus, there be high benefits for processing healthy food products. Thence, this study emphasized studying consumer behavior, demand, and marketing mix factors for buying decisions of processed butternut squash products to formulate a new product development marketing plan as a case study of processed butternut squash products. The sample groups were consumers living in the upper northeastern area of Thailand, collected data by purposive random technic for 400 samples who had ever bought or eaten pumpkin or butternut squash. The research tool was an online questionnaire through a google form, and data analysis was descriptive and inference statistics.

The research revealed that most female consumers aged 20-30 bought or ate pumpkin crisps. Most consumers wanted the butternut squash to develop into a crispy breadstick with cheese flavor. While the product aspect, consumers were interested in the modern and good-looking packaging ( $\bar{X}=4.39$ ), the price aspect gives importance to the reasonable pricing for the quantity ( $\bar{X}=4.46$ ). In terms of distribution channels, consumers pay more attention to distribution through e-commerce channels, such as Shopee /Lazada ( $\bar{X}=4.35$ ), and in promotional aspects, with a focus on promotion is the buy-one-get-one promotion activity ( $\bar{X}=4.48$ ).

**Keywords:** Marketing Plan, Processed Butternut Squash Products, Healthy Products, Consumer Demand

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## 1. Introduction

The agricultural sector is vital to the Thai economy, but now, farming in Thailand has a lower income. In 2019, Thai farmers had a gain of 269,449 Baht/ household/year, classified as a net agricultural income of 78,604 Baht (30.00%) and a net income of the non-agricultural sector of 190,845 Baht (70.00%), due to the decline in agricultural product prices. Moreover, when comparing the output in 2018 and 2019, rice had a slower growth rate of 24.95%, vegetables showed a decrease of 7.55%, and pumpkin continuously decreased the price rate [1].

In the drought problem in 2019, Thailand had a low rainfall during the rainy season, and there was a significant decrease in the agricultural water supply. Moreover, in 2020, there was not enough water to cultivate in agricultural areas, and a crop epidemic affected the products' quality degradation [2]. Some farmers then turned to growing new species of plants from abroad. In addition, they were using technology to control production, resulting in better and more quality products, thus giving farmers more bargaining power in offering their products to the intermediaries and the market [3].

Nowadays, farmers who grow butternut squash are not widespread, so the selling prices are high. On the other hand, the butternut squash is easier to care for and belongs to the same plant family, good yielding, which is suitable for the climate in Thailand. Moreover, after harvest, the butternut squash can be stored for up to 2 months. Therefore, farmers should pay more attention to a potential plant with high

consumer demand among health-conscious people [4]. Butternut squash grown in Thailand is a hybrid F1 species originating in America and Japan. It looks like a tall, gourd, smooth surface. When the squash matures, the rind changes color from pale yellow to brownish-yellow. Butternut squash has yellowish-orange flesh and is denser than regular pumpkins, with a sweeter taste [5].

Butternut squash is rich in nutrients, including antioxidants that help slow aging and reduce cancer cells' resistance. In addition, beta carotene vitamin A helps nourish the eyes, improving visual efficiency even more. It also contains calcium, which helps maintain strong bones and high dietary fiber and helps the digestive system excrete conveniently [6].

The marketing plan guides business, especially when entrepreneurs are required to develop a new product. The marketing plan is a step starting with a SWOT analysis to examine the business circumstances and consumer behavior and demand analysis before making an appropriate marketing plan [7]. Therefore, the researchers focused on studying consumer behavior, demand, and influencing marketing mix factors for consumer buying decisions. Finally, the researchers intended to use this valuable information to develop new processed butternut squash products that meet the target market demand.

## 2. Research Objectives

2.1 To study consumer behavior in buying processed butternut squash products.

2.2 To investigate the consumer demand for new processed butternut squash products.

2.3 To reveal the marketing mix factors for buying decisions of processed butternut squash products.

2.4 To develop a new processed product from butternut squash.

### 3. Research Hypothesis

H1: Different personal factors resulted in different marketing mix factors affecting the buying decision on processed butternut squash products.

H2: Different consumer buying behavior resulted in different marketing mix factors affecting the buying decision on processed butternut squash products.

H3: Different consumer demands for new processed products resulted in different marketing mix factors affecting the buying decision on processed butternut squash products.

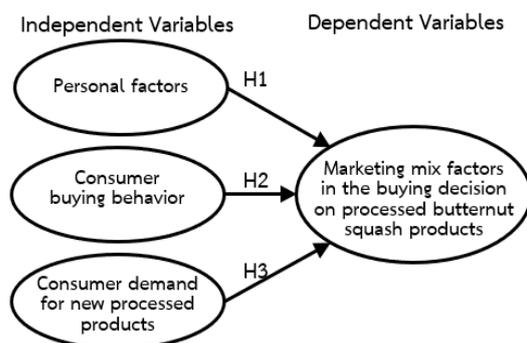


Figure 1 Conceptual Framework

### 4. Literature review

#### 4.1 Marketing management

Marketing management is the process of creating value for customers with critical stages. First, a firm needs to know customer insights, create customer value, increase

customer loyalty, and receive good value rewards in return. In addition, 4P marketing plan strategies consisting of products, prices, place, and promotion strategies can create marketing value [7]. In addition, the marketer should find the product-market fit, which means finding an attractive market and then finding the right product to disrupt the market. Finally, businesses should urgently recover and improve their marketing plan if they find any mistakes after a product launch [8].

#### 4.2 Consumer behavior

Consumer behavior is currently being extensively studied to understand consumer insights or marketing factors that inspire consumers with internal and external influences [9]. The personal attributes commonly used to define individual consumers are gender, age, education, occupation, income, and lifestyle [10]. If a consumer makes a buy decision and uses and disposes of the buying goods or services, this includes factors that influence the decision and use of the product. Meanwhile, consumer product and service preferences are constantly changing; thus, marketing managers should understand what consumers want to create a well-defined market with marketing mix strategies [7], [11].

#### 4.3 Product development

Research analytic data is valuable for developing new products, especially consumer products, for the target market objectives [12]. Nowadays, people are more concerned about green products being friendly daily, including being willing to pay for premium products with organic materials. Therefore, manufacturers and marketers

have responded to this new trend by incorporating more efficient elements into their product designs to benefit the environment. Placing a safer production process and offers to create a more environmentally friendly brand image [13].

### 5. Research Methodology

This research was a survey study for new processed butternut squash products in the upper northeastern area. The researchers had studied according to the following steps.

#### 5.1 Population and Sample

The population used in this research was consumers who bought or ate pumpkin or butternut squash and lived in Udon Thani, Sakon Nakhon, Nakhon Phanom, Nong Bua Lamphu, and Mukdahan Province. Because the population is large and the exact population is unknown, then the size of the

sample could be calculated from the W.G. Cochran formula with a 95% confidence level [14]. Therefore, the sample size was calculated to be at least 384 samples suitable to examine the population, with a tolerance of not over 5%. However, for the convenience of data analysis, the researchers used a total sample size of 400 samples, which met the criteria as specified conditions were not less than 384 samples.

The next step the researchers planned to collect the consumer was using the quota sampling method [14]. Thence, the sample were consumers in Udon Thani (148 samples), Sakon Nakhon (108 samples), Nakhon Phanom (68 samples), Nong Bua Lamphu (44 samples), and Mukdahan province (32 samples). Collected data by purposive random technic who bought or ate pumpkin or butternut squash as shown in Table 1.

**Table 1** Population and sample groups in the upper northeastern area

| Upper Northeastern Area     | Population       | Population Ratio | No. of Samples |
|-----------------------------|------------------|------------------|----------------|
| 1. Udon Thani Province      | 1,579,105        | 37.00 %          | 148            |
| 2. Sakon Nakhon Province    | 1,152,379        | 27.00 %          | 108            |
| 3. Nakhon Phanom Province   | 717,493          | 17.00 %          | 68             |
| 4. Nong Bua Lamphu Province | 512,241          | 11.00 %          | 44             |
| 5. Mukdahan Province        | 350,373          | 8.00 %           | 32             |
| <b>Total</b>                | <b>4,311,591</b> | <b>100.00 %</b>  | <b>400</b>     |

#### 5.2 Research Tools

The research tool was the questionnaire constructed by exhaustively reviewing theory, concepts and relevant studies then; this study was presented in four parts: (1) consumer personal factors with five multiple-choice questions, (2) consumer behavior in buying processed

pumpkin or butternut squash products with multiple-choice questions (3) consumer demand for new processed butternut squash products, with six of multiple-choice questions and (4) the marketing mix affecting the buy of processed butternut squash products with 30 questions of five-Likert's Scale levels: very high, high, moderate, low,

and very low importance levels. First, three experts validated and assessed the questionnaire draft [15]. Next, in the 30-try-out sample [16], a questionnaire that evaluated the reliability of Cronbach's Alpha [17] statistic showed 0.94 (accepted at >0.80).

### 5.3 Data Analysis

Using a statistical package, the researchers analyzed for frequency, percentage, mean, and standard deviation. The hypotheses were tested using a t-test, one-way ANOVA, and LSD analysis. The criteria for using the average score in rating scale questions and descriptive statistics were used to compute the average scores and standard deviations. The mean value was interpreted as follows [14]:

- 4.50 – 5.00 = Very High importance
- 3.50 – 4.49 = High importance
- 2.50 – 3.49 = Moderate importance
- 1.50 – 2.49 = Low importance
- 1.00 – 1.49 = Very Low importance

## 6. Research result

### 6.1 Personal factor

Most of the respondents who answered the questionnaire were female (50.70%), aged between 20-30 years old (73.50%), students (60.50%), and had an average monthly income of not over 10,000 Baht (59.50%).

### 6.2 Consumer buying behavior

Consumer buying behavior factors revealed that most of the respondents had bought or ever eaten a processed pumpkin or butternut squash crispy (30.80%) with a buying purpose for own consumption (66.00%), buying frequency 1-2 times/month (82.50%), the spending amount was less than 100 Baht/time (72.50%), buying on their own decisions (57.50%).

### 6.3 Consumer demand for new processed butternut squash products

Most respondents required the new butternut squash development to be butternut squash breadstick products (38.50%) with cheese flavor (69.50%), as shown in Table 2.

**Table 2** Percent and ranking of consumer demand for new processed butternut squash products

| Consumer demand for new processed butternut squash products | Percent       | Ranking |
|---|---------------|---------|
| Butternut squash breadstick (ขนมขาไก่)                      | 38.50         | 1       |
| Butternut squash dorayaki pancake (โดรายากิ)                | 19.00         | 2       |
| Butternut squash DIY crispy crepe (ขนมเบื้อง DIY)           | 18.30         | 3       |
| Butternut squash biscuits (ขนมบิสกิต)                       | 18.30         | 3       |
| Butternut squash senbei (ขนมเซมเบ้)                         | 6.00          | 5       |
| <b>Total</b>  | <b>100.00</b> |         |

#### 6.4 Marketing mix factors for buying decisions about processed butternut squash products

The results discovered that overall marketing factors were of a high importance level ( $\bar{X}=4.27$ ). Most respondents rated the Product element as of high importance level ( $\bar{X}=4.29$ ), and consumer responses on the good-looking with modern packaging ( $\bar{X}=4.39$ ). Price element at a high importance level ( $\bar{X}=4.33$ ), consumer responses on the price suit the quantity ( $\bar{X}=4.46$ ), and a

reasonable price with quality ( $\bar{X}=4.39$ ). Place element at a high importance level ( $\bar{X}=4.19$ ); distribution channels should be sold through e-commerce channels, including Shopee/Lazada ( $\bar{X}=4.35$ ) and via social media, i.e., Facebook, Instagram, Line@, and Twitter ( $\bar{X}=4.33$ ). And Promotion element at a high importance level ( $\bar{X}=4.27$ ), a producer should run promotional activities “Buy one get one free” ( $\bar{X}=4.48$ ) and a tasting booth ( $\bar{X}=4.28$ ) as presented data in Table 3.

**Table 3** Importance of marketing mix factors for buying decisions of processed butternut squash products.

| Marketing Mix Factors | $\bar{X}$   | S.D.        | Importance Level       |
|-----------------------|-------------|-------------|------------------------|
| <b>Overall</b>        | <b>4.27</b> | <b>0.45</b> | <b>High importance</b> |
| Product               | 4.29        | 0.48        | High importance        |
| Price                 | 4.33        | 0.51        | High importance        |
| Place/Channel         | 4.19        | 0.58        | High importance        |
| Promotion             | 4.27        | 0.53        | High importance        |

#### 6.5 Hypotheses Test Results

6.5.1 H1-Hypothesis test results: the consumers excluded the consumers who had lived in different provinces that were affected by different marketing mix factors for buying decisions on processed butternut squash products in terms of price, place, and promotion at a statistically significant difference of 0.05, as the details were shown in Table 4.

Price: the hypothesis tests resulted from those consumers living in Mukdahan province rated high attention to the price factors than the consumers in other

provinces, with a statistically significant 0.05 level.

Place: the hypothesis tests resulted from those consumers living in Nakhon Phanom province rated high attention to the place factors than the consumers in other provinces, with a statistically significant 0.05 level.

Promotion: the hypothesis tests resulted from those consumers living in Nakhon Phanom province rated high attention to the promotion factors than the consumers in other provinces, with a statistically significant 0.05 level.

**Table 4** H1-Hypothesis test result of different personal factors resulted in different marketing mix factors affecting the buying decision on processed butternut squash products

| Personal data  | Marketing Mix Factors |        |        |           |
|----------------|-----------------------|--------|--------|-----------|
|                | Product               | Price  | Place  | Promotion |
| Province       | 0.694                 | 0.036* | 0.001* | 0.015*    |
| Gender         | 0.975                 | 0.595  | 0.221  | 0.288     |
| Age            | 0.218                 | 0.220  | 0.411  | 0.056     |
| Career         | 0.595                 | 0.269  | 0.072  | 0.137     |
| Monthly income | 0.535                 | 0.052  | 0.264  | 0.766     |

\*Statistically significance level at 0.05

6.5.2 H2-Hypothesis test results: Consumers who had ever eaten or bought the pumpkin or butternut squash products were affected by different marketing mix factors in the buying decisions on processed butternut squash products in terms of product, price, and place factors at the statistically significant difference of 0.05, as detailed shown in Table 5.

Product: the hypothesis tests resulted from those consumers who chose the dorayaki pancake rated high attention to the product factors than those who chose other

products, with a statistically significant 0.05 level.

Price: the hypothesis tests resulted from consumers who spent buying at 100-300 Baht/time rated greater attention to the price factors than those who spent other amounts, with a statistically significant 0.05 level.

Place: the hypothesis tests resulted from those consumers who spent buying amount at 301-500 Baht/time rated high attention to the place factors than the consumers who spent others amount, with a statistically significant 0.05 level.

**Table 5** H2-Hypothesis test result of different consumer buying behavior resulted in different marketing mix factors affecting the buying decision on processed butternut squash products

| Consumer buying behavior | Marketing Mix Factors |        |        |           |
|--------------------------|-----------------------|--------|--------|-----------|
|                          | Product               | Price  | Place  | Promotion |
| Product choices          | 0.036*                | 0.185  | 0.498  | 0.197     |
| Purpose                  | 0.688                 | 0.508  | 0.862  | 0.663     |
| Frequency                | 0.690                 | 0.099  | 0.639  | 0.243     |
| Spending amount/ time    | 0.053                 | 0.016* | 0.002* | 0.127     |
| Influenced person        | 0.418                 | 0.804  | 0.213  | 0.581     |

\*Statistically significance level at 0.05



6.5.3 H3-Hypothesis test results: processed butternut squash products, Consumer demands for new processed ultimately finding no statistically significant products resulted in different marketing mix difference of 0.05, as shown in Table 6. factors affecting the buying decision on

**Table 6** H3-Hypothesis test result of different consumer demands for new processed products resulted in different marketing mix factors affecting the buying decision on processed butternut squash products

| Consumer demand for new processed products | Marketing Mix Factors |       |       |           |
|--|-----------------------|-------|-------|-----------|
|  | Product               | Price | Place | Promotion |
| Type                                       | 0.240                 | 0.425 | 0.407 | 0.275     |
| Flavor                                     | 0.283                 | 0.057 | 0.051 | 0.142     |

\*Statistically significance level at 0.05

## 7. Discussion

Packaging is an essential factor of consumer products, supported by [7] [9] [11] [13] stated that the producer should consider the efficient packaging, appropriate design, protection, and preservation fit for products; meanwhile, the packaging is a part of marketing communication medians. In terms of price, consequent with [18], consumers gave opinions on price factors at the high-importance level regarding the price factors, which was a reasonable quantity price and reasonable quality price. Anyhow, in contrast with [18], place factors regarding the product distribution channels through the offline/convenience store, not through the online channel.

According to the hypothesis test result, consumers personal factors agreed with the study of [19] the age, levels of education, occupation, and monthly income had no difference in buying decisions on processed vegetables and fruits; meanwhile, gender had different influences.

Consumer-approved products by choosing suitable formulas accepted by the panellists were developed by varying the mix between pumpkin flour, whole grain flour, and butter. They preferred the combined ingredient of pumpkin crackers with rice flour the most as [20] study. Thus, the researchers can foresee that target consumers will accept this new healthy product supported by [13] and [20].

## 8. Suggestion

8.1 Marketing plan: based on this study's results, the researchers have the following recommendations "Better Squash" sample brand for agriculture and food industry businesses as below.

8.1.1 Product: In terms of products, most consumers are concerned with modern, good look packaging, easy-to-tear packaging, and product information such as quantity, manufacturing date, expiration date, place of manufacture, and others (Figure 2–3). Recommendations for final healthy products presented to consumers

must be low in calories, made from nature with exotic taste. In addition, it has higher benefits and can be stored for a long time.

Therefore, the product must be tested with the expected target group before launching when presenting a new product.



Figure 2 Brand prototype “Better Squash”



Figure 3 Product prototypes “Butternut squash breadstick with cheese flavor”



8.1.2 Price: In terms of price, most consumers pay more attention to products whose price is commensurate with the quantity, quality, and promotional prices. A manufacturer should calculate the production cost per pack and add the desired profit accordingly. The expected profit can be reduced to keep the product priced below the competitors in the market. This pricing strategy was used to reach the target consumers and encourage them to buy more products so that the butternut squash breadstick becomes popular.

8.1.3 Place (Channels): Most consumers paid high attention to products sold through e-commerce channels such as Shopee/Lazada and marketed through social media channels like Facebook and Instagram. Moreover, home delivery services via freight forwarding companies such as Thailand post, Kerry, and J&T increase distribution channels according to consumer demand. As a result, it will help the product reach big groups of target consumers.

8.1.4 Promotion: Most consumers focus on products communicated through social media such as Facebook, Instagram, YouTube, or Twitter. The in-store advertising signages will arouse the consumer's attention. Moreover, the marketer should select the famous influencers reviewing products through social media such as Facebook and YouTube. Booth set up to showcase products and persuade consumers

to try out samples. An example of a sales promotion activity: buy one get one free, 5% discount for buying 100 Baht. As a result, there is an increase in product volume during the product introduction; therefore, doing marketing and promotional activities in many forms will make the product well known, create more brand recognition, and make consumers buy more products, thereby increasing sales for the businesses.

## 8.2 Future research suggestions

8.2.1 Further studies, the qualitative research should be a parallel study with a questionnaire such as in-depth interviews or focus groups to gain more insights about purchasing processed products made from butternut squash. The deep consumers' understanding will discover more detailed and specific information used for systematic analysis that benefits the products developed to meet the needs of consumers truly.

8.2.2 A future study of the decision-making consumer behavior on other agricultural processed products from consumers living in the upper northeastern region for comparison will be manifest interest.

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