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Implementing the digital transformation to increase awareness of rice varieties in Pathum Thani, Thailand.

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Abstract

Thailand is an agricultural country that produces an extensive variety of crops such as white rice, jasmine rice, broken rice, glutinous rice, parboiled rice, and husked rice (cargo rice). Thailand's rice economy is currently in a state of disarray since Thailand has an important competition with Vietnam and India. Consequently, rice breeding has emerged as a critical alternative for the country's economic recovery. As a result, Thailand has to export innovative rice varieties and conduct research in order to assist the rice industry.

PPT rice, RD31 (Pathum Thani 80) rice, and PathumThani 1 rice have been the rice project at research centers in Pathum Thani province. The rice varieties are directly associated with Pathum Thani province, and these rice have some relationships in terms of collaboration with several research centers in other provinces. However, Thai consumers are still unable to approach the three varieties of rice.

The problem statement in the research is that Thailand has a challenge in the rice industry with major competitors such as Vietnam and India. Pathum Thani, as one of the agricultural areas, updates rice varieties for solving problems, including PPT rice, RD31 (Pathum Thani 80) rice, and PathumThani 1. However, Thai people are unaware of the three rice varieties until related organizations promote them in convenient locations such as malls, mini-marts, and markets. Digital transformations will be essential strategies to facilitate the rice varieties from the first step on the online platforms until the last step, which has a wider market in 4-5-star hotels and restaurants.

The objectives of the research article are:

1. Examining the extent to which people perceive and comprehend three rice varieties in the Pathum Thani Province including PPT rice, RD31 (Pathum Thani 80) rice, and PathumThani 1 rice.
2. Examine possible approaches for enhancing the promotion of the three rice varieties in the Pathum thani province by applying digital transformations to enhance the awareness and accessibility of rice varieties.
3. Explore the opportunities to exhibit three rice varieties in the 4-5-star hotels and famous restaurants in Thailand.

The research project interviews a sampling of 75 participants who have a hometown, workplace, or residence in Thanyaburi District, Pathum Thani Province area 4. The survey collected data from the sample group with rating scale questionnaires from May 22, 2024 to May 27, 2024. The survey was generated by the Google Form programme to collect data from people in Pathum Thani province who prefer shopping or traveling in Thailand. The related locations in Thanyaburi district, Pathum Thani province, include BTS stations, markets, malls, and mini-marts.

The hypotheses in the questionnaires are as follows: 1. The majority of the sample group has seen white rice and jasmine rice more often than the other three rice varieties. 2. More than 50% of the sample group

satisfies more than level 4 on the rating scales, with the objective of raising awareness of three rice varieties in Pathum Thani province through applying digital transformations to the solutions. 3. More than 50% of the sample group is satisfied to purchase rice for less than 30 baht.

The results demonstrate that the majority of the sample was female and held a bachelor's degree, and sample group ages ranged from 42 to 57. Both white rice and jasmine rice are well-known in malls, mini-markets, markets, hotels, and restaurants. Therefore, white rice and jasmine rice are more visible than PPT rice, RD31 (Pathum Thani 80) rice, and PathumThani 1 rice. The

sample group has agreed to the solutions in the research project to support the rice varieties from Pathum Thani Province at the highest level, including distribution in online applications such as Facebook, Line, TikTok, Instagram, etc., pushing rice varieties to more convenient locations, including markets, malls, mini-markets, etc., an agricultural exhibition dedicated to host the three rice varieties that are cultivated in Pathum Thani Province., and elevating the quality of rice varieties to international standards in establishments including 4-5-star hotels and restaurants. The last part of the questionnaires demonstrates that the sample group considered rice price factors when purchasing rice, and they satisfied rice prices lower than 30 baht per kilogramme.

Thailand has been impacted by a lack of economic incentives, and Thai consumers or Thai farmers are looking for quality of life. Pathum Thani Province should support Thai farmers in the agricultural sector by creating an online platform with the objective of improving Thai consumers' awareness in Thanyaburi district, Pathum Thani province. As a result, the private sector and the Thai government have to collaborate to increase the value of rice by making policies to support three rice varieties as the main export products.

Keywords: rice, agricultural, prices, framing, PPT rice, RD31 (Pathum Thani 80) rice, PathumThani 1 rice, digital transformation, farmers, awareness

Introduction

Thailand has had rice as a main agricultural export for a long time. The export products ranking structure chart for 2023–2024 demonstrates that the products ranked 1–7 are several varieties of rice, including white rice, jasmine rice, broken rice, glutinous rice, parboiled rice, husked rice (cargo rice), etc. However, Vietnam and India, as major rice competitors, make Thailand more challenging in the rice industry. (Department of Internal Trade, 2022, p. 7) As a result, Thai agricultural policy makers worked together with the Thai government to assist Thai farmers by implementing smart farming initiatives, rice insurance, crop insurance, rice acquisition policies, and mining policies. On the other hand, Thailand's agricultural sector has grown only 7.7 percent, compared to the substantial 82.7 percent growth in Vietnam (53.2 percent), Australia (51.5 percent), and India (82.7 percent). (2024, TTB Analytics)

Although Thailand was trying to increase production by inventing new rice varieties, The motivation of Thai farmers to cultivate their land is decreasing. Thai farmers still decide to work as laborers in Bangkok, Thailand, following the approval and promulgation of the minimum wage by the Prime Minister's Government and the current Wage Commission No. 22 on March 26, 2024. On April 13, 2024., the Prime Minister's Government and the current Wage Commission No. 22 increased the minimum wage to 400 baht. (Royal Thai Government, 2024) However, the opposition party opposed the resolution, which included increasing labor wages in hotel operations in only two of the 55 Bangkok districts. Qualified hotels must have more than 4 stars, and hotels must have at least 50 workers. (matichon tv & Official Matichon TV [matichon tv], 2024, 13.30–17.20)

Pathum Thani Province's geographical features are suitable for growing rice. Furthermore, Pathum Thani Province has a popular tourist destination, such as the future park Rangsit, which is the largest mall in Pathum Thani. The research, which focused on Pathum Thani province rice, is crucial for increasing awareness of the exceptional quality and continuous progress of rice varieties in Pathum Thani province, Thailand. If the research is able to introduce three rice varieties to Thai people who live in Pathum Thani province for

consumption and purchasing, the solutions tend to be possible to implement digital transformation to facilitate processes including distribution in online platforms such as Facebook, Line, TikTok, Instagram, etc., pushing rice to more convenient locations including markets, malls, mini-marts, etc., an agricultural exhibition hosted to present three rice varieties in Pathum Thani., and elevating the quality of three rice varieties in Pathum Thani province to international standards in establishments such as 4-5-star hotels and restaurants.

Collaboration between the government department and Thai farmers appears to be difficult, not similar to collaboration between the private sector and Thai farmers, because Thai farmers must trust the government's execution, and the Thai government should consider developing policies to address Thai farmers' concerns. The effectiveness of digital transformation methods will be strengthened when confidence in collaboration happens through the exchange of knowledge, opinions, and experiences. (Donavon Johnson, 2024)

The scope of research in the article focuses on the 3 important rice varieties in Pathum Thani, including PPT rice, RD31 (Pathum Thani 80) rice, and PathumThani 1 rice, and how the solutions in the research contribute to the development of the dominant rice industry.

PPT rice is a renowned rice variety in Pathum Thani Province, earning the top position in the 1st New Commercial Rice Variety Contest in 2021, winning awards from 48 other competing rice varieties. Pathum Thani Province awarded PPT rice in the Thai fragrant rice category.

However, PPT rice has limited availability in familiar locations, especially Pathum Thani, such as malls or mini-marts. The research project focuses on the quality of life of individuals in Thailand, which is why the researcher selected the three rice varieties in Pathum Thani, Thailand, as a significant component of the study. (bangkokbiznews, 2022)

The Suphanburi Provincial Rice Research Centre discovered RD31 rice, also known as Pathum Thani 80 rice. In 1993, the Suphanburi Provincial Rice Research Centre found RD31 through a breeding experiment involving several varieties of rice. The rice formulas IR54017-131-1-3-2 were combined with SPR85163-5-1-1-2 for a period of approximately 3 years until 1996, when the rice varieties were discovered. SPR93049-PTT-30-4-1-2, also known as RD31 (Pathum Thani 80) rice, and Pathum Thani Research Centre have been involved in quality analysis.

RD31 (Pathum Thani 80) rice is a variety of rice that has been tested and bred to improve rice durability and resistance to pests and diseases. Eight central provinces have cultivated and compared RD31 (Pathum Thani 80) rice to determine its suitability for rice cultivation. (Knowledge about rice Rice Research and Development Office, Rice Department, Ministry of Agriculture and Cooperatives, 2013)

Combining BKN A6-18-3-2 and PTT85061-86-3-2-1 results in the hybrid rice variety Pathum Thani 1. However, the level of popularity of this rice is not as well known as that of white rice or other rice varieties. (Rice Knowledge Bank, 2014)

Residents in the community areas of Pathum Thani province consume Pathum Thani 1 rice sometimes. The Royal Irrigation Department developed the rice variety to reduce light sensitivity until this rice is suitable for cultivation in provinces. Although Pathum Thani 1 rice from Pathum Thani province could produce a yield of 650–774 kilograms per rai, pandemic conditions such as excessive rainfall and prolonged periods of dryness influence a number of the Pathum Thani 1 rice.

The Pathum Thani province permits the consumption of a variety of rice. However, Pathum Thani 1 rice is still not as well-known as export products like white rice and jasmine rice because of concerns about pandemics and marketing campaigns. (© 2023 Rice Research and

Development Division, Rice Department, Ministry of Agriculture and Cooperatives. All rights reserved.)

According to the Pathum Thani area, the political constituency for administration divides Pathum Thani province into 7 districts referred to the elections. Pathum Thani is one of the most important provinces for multiple reasons. (Itax Inc., 2023)

Pathum Thani province has important malls, which are one of the crucial checkpoints in central Thailand. The landmark is Future Park Rangsit, which is the 21st largest shopping mall in terms of area. The majority of Thai suppliers in Pathum Thani have to contact this mall to raise awareness of the latest products, and the Pathum Thani administration should support merchandise products in Pathum Thani by promoting products and services in the famous mall. Additionally, the future park rangsit is located in Thanyaburi District, Pathum Thani. (© Copyright 2020 www.futurepark.co.th All right reserved., 2020)

The research objectives focused on

Examining the extent to which community in Thanyaburi District, Pathum Thani Province area 4, Thailand, is aware three varieties of rice in the Pathum Thani Province, including PPT rice, RD31 (Pathum Thani 80) rice, and PathumThani 1 rice.

Examine possible approaches for enhancing the rice industry by applying digital transformation to increase awareness and accessibility of rice varieties in Thanyaburi district, Pathum Thani province, area 4.

Hosting exhibitions of the three rice varieties for Thai consumers and promoting the three rice varieties from Pathum Thani province at 4-5-star hotels and restaurants.

The thesis statements of the article are that the majority of communities in Thanyaburi District, located in Pathum Thani Province area 4, Thailand, are unaware of the existence of the three varieties of rice, including PPT rice, RD31 (Pathum Thani 80) rice, and PathumThani 1 rice. The Pathum Thani Province research center or collaborate with Pathum Thani Province research in Pathum Thani Province supports efforts to raise awareness of the three varieties.

Literature review

The rice industry in Thailand has faced serious challenges, including the varieties of rice, research project problems regarding exportation to the international market, and poverty among the population in the country. (Rahman & Zhang, 2022) Although Thailand has confirmed the substantial influence of ENSO (El Niño-Southern Oscillation) on rice yields, this can assist rice production. The rice industry in Thailand has exported rice problems. (Hensawang et al., 2021) Therefore, despite the challenges associated with new rice varieties, Thailand established best practices and techniques for maintaining rice production consistently. Regretfully, Thai rice farmers face more obstacles when growing rice than researchers in terms of wage and financial support. Furthermore, Thai farmers tend to terminate their current careers without having any further consideration for Rice's circumstances.

Due to the combination of low rice export prices and Thai farmers's wages, Thai laborers relocated to the capital in search of higher revenue and employment opportunities in the service and food sectors. (TTB Analytics, 2024) The agricultural labor ratio from 2012 to 2021 averaged 33.47% lower than service and industrial labor, around 9.11%, highlighting the significant challenges Thai farmers confront. Thailand's agricultural labor-generated GDP

is only 1.34 billion, compared to the country's total GDP of more than 14.7 billion. (DIGI Thailand © 2024 TABLEAU SOFTWARE, LLC, 2023)

Additionally, there is a significant disparity between the number of farmers's revenues and the number of total profits by entrepreneurs. In fact, Thai farmers receive just 1.1%, or 0.22 baht, of the 7 baht per kilogram price of white rice, while mediums or entrepreneurs obtain profits up to 4.05 to 5.8 baht per kilogram, which is a ratio ranging from 19.6% to 24.5%. (TTB analytics, 2024)

Rice prices have not risen as expected, but multiple new rice varieties are launching as strategies to challenge competitors. It is possible that Thai people are unaware of the existence of these rice varieties from Pathum Thani, Thailand. Although rice varieties are limited to most locations, there is a problem for Thai consumers with the opportunity to purchase high-quality rice at convenient locations such as malls, mini-marts, and markets. (Rice Department, 2024)

Because rice varieties from Pathum Thani Research Center have received recognitions and awards. Pathum Thani province is suitable for increasing the value of rice varieties. Pathum Thani's community must be aware of the existence of the three rice varieties. If a community in Thanyaburi District, located in Pathum Thani Province, Area 4, Thailand, consumes quality frequently enough, digital transformation will be instrumental in facilitating more direct trade between buyers and sellers. The digital transformation has a positive impact on the price that Thai farmers receive from Thai consumers, which decreases their expenses for travel fees, taxes, and retailer value. Digital transformations can facilitate direct trade between manufacturers and buyers, particularly in Thanyaburi District in Pathum Thani Province, Area 4, Thailand. Online platforms like social media and offline channels like exhibits can reduce the price gap between the prices Thai farmers receive and the export prices. (DIGI Thailand © 2024 TABLEAU SOFTWARE, LLC, 2023)

As a result, the objective in this research focuses on interviewing people in Pathum Thani who consume and purchase rice.

Methods: samples and populations

Population: The population for the research is the community in Thanyaburi District, located in Pathum Thani Province area 4.

(Department of Health, Ministry of Public Health 2024, 2023)

Sample group: A convenience sampling method has a total of 75 individuals from the Thanyaburi District in the Pathum Thani Province area 4. This method employed specific techniques for establishing sample size and randomization procedures. (McCombes, 2023)

2.1) Having a registered area in the Thanyaburi area 4, Pathum Thani province, such as residence, work address, or current address.

2.2) The sample group is responsible for purchasing and selecting different types of rice independently.

2.3) having the habit of purchasing consumer products from malls, mini-marts, or markets.

2.4) Consuming and cooking rice are preferred.

2.5) Having a strong desire to travel beyond the workplace for both vacation and work purposes.

2.6) Sample groups in the research survey can order rice and obtain information about rice products through both offline and online channels.

Methods for collecting information

The researcher divided an online questionnaire into 3 parts and generated questions by utilizing the Google Form for a sample group in related areas such as malls, mini-marts, markets, and fairs.

Part 1: The questionnaires about participants' status. Questions take the form of checklists about age, gender, and education.

Part 2: The questionnaire inquires about the frequency of rice existence in well-known locations and the level of satisfaction of the three rice varieties in Pathum Thani Province, which include PPT rice, RD31 (Pathum Thani 80), and PathumThani 1 rice. The survey created questionnaires in the form of a form of a rating scale with 5 levels: highest, high, moderate, least, and lowest.

Part 3: Additional comments for increasing awareness of rice varieties in Pathum Thani Province into the open-ended format.

Data collecting

The researcher proceeded with data collection in the following manner:

Connect with the sample group through online platforms such as Facebook, Line, Instagram, and others.

Prepare for the examination and answer the questions.

Elaborate the objectives for the sample group. Explain the benefits of performing the survey for this particular research objective.

Explain the process for conducting questionnaires by utilizing Google Forms on online platforms that they can easily understand.

Perform data acquisition. The data collection period is scheduled from May 22, 2024 to May 27, 2024.

Questionnaires will be calculated with statistical calculations that follow specific criteria.

Data analysis

The researcher analyzed the data in the specified sequence: Determine the average and variability, which are the fundamental statistical measures. (McCombes, 2023)

The equation is

$$X = \sum X / N$$

where $\sum X$ represents the aggregate level of satisfaction in each individual's questionnaire and N is the total number of samples.

$$S.D = \sqrt{[n \sum X^2 - (\sum X)^2 / n] / (n - 1)}$$

S.D. represents the sample's standard deviation, and X represents each score. The number of samples is denoted as n .

$\sum X^2$ represents the squared and totaled individual scores.

The value $n-1$ represents the total number of samples that are less than one.

$(\sum X)^2$ substitutes and squares the sum of each score.

An evaluation of a survey 5 level rating scale is used to assess opinions and responses. Therefore, the data can use the following statistical evaluation criteria to determine the mean and variability:

4.50 – 5.00 strongly agree

3.50 – 4.49 very agree

2.50 – 3.49 moderate

1.50 – 2.49 slightly disagree

1.00 – 1.49 strongly disagree

The standard deviation (S.D.) values utilized the following criteria for estimating 3 levels.

More than 1.75%: strongly different

1.25–1.75%: quite different

Less than 1.25%: little difference or similar

2. Conduct the survey data analysis by utilizing Google Sheets to investigate the relationship between the variables and the hypotheses.

Hypotheses:

The majority of the sample group noticed white rice and jasmine rice more than the three rice varieties mentioned in the research articles.

More than 50% of the sample group agreed with the decision to purchase rice at a price lower than 30 baht.

More than 50% of the sample group agreed more than level 4 with the solutions to improve rice awareness of three rice varieties from Pathum Thani province in the questionnaires.

Results

The following data elaborates on the target group of customers in Thanyaburi district, Pathum Thani province, area 4. (Sumat Nunseesai, 2021)

1. What is your age?	Quantity	Percentage
18-25 year olds	4	5.3%
26-33 year olds	14	18.7%
34-41 year olds	16	21.3%
42-49 year olds	18	24%
50-57 year olds	20	26.7%
58 year olds or above	3	4%
Total	75	100%

2. Gender	Quantity	Percentage
Male	18	24%
Female	55	75.3%
LGBTQIA+	2	2.7%
Total	75	100%

3. Level of education.	Quantity	Percentage
Lower than high school.	0	0%
High school.	14	18.7%
Bachelor's degree.	59	78.7%

Price	1	1	3	11	59	4.68	0.738
Flavor	1	0	5	12	57	4.653	0.725
Smell	2	4	9	12	48	4.3333	2.012
Brand	1	11	30	28	5	3.3333	0.86
Quality	1	1	6	11	56	4.6	0.806
Public Relations, Advertising, and Marketing	1	11	19	24	20	3.68	1.067
Package	5	9	28	28	5	3.2533	0.987

The factors influencing the decision for consumers to purchase rice revealed 2 factors that represent the medium decision level for the sample group in the survey: Package: 3.25, and Brand: 3.33. The stronger level of decision-making reveals 2 factors: Public relations, advertising, and marketing receive a score of 3.68, while smell receives a score of 4.33, with a standard deviation (S.D.) of 2.01. The result exhibits considerable variation as the best decision level is based on the following 3 factors: Price: 4.68, flavor: 4.653, and quality: 4.6.

8. Which channel do you frequently use to purchase rice?	1	2	3	4	5	Mean (X)	S.D
Market	0	3	13	27	32	4.1733	0.86
Malls	0	3	5	27	40	4.3866	0.787
Mini-marts	1	6	4	27	37	4.24	0.971
Online-Platform	8	6	15	26	20	3.5866	1.264
Directly communicate with the farmer.	47	13	10	5	0	1.64	0.953

The data table for Question 8 demonstrates that the sample group orders rice from malls the most frequently, with an average order frequency of 4.39, and the 2 locations had similar average scores. (mini-marts: 4.24 and the market: 4.17) However, the level of purchase from farmers directly has the lowest score at 1.64. Ordering online differs significantly from the standard deviation (S.D.), according to 1.264.

9. How often per month do you consume this rice?	1	2	3	4	5	Mean (X)	S.D
PPT rice	73	1	1	0	0	1.04	0.257
RD31(Pathum Thani80) rice	66	9	0	0	0	1.12	0.777
Pathum Thani 1 rice	65	9	1	0	0	1.1466	0.711

10. How well do you understand the benefits of this rice?	1	2	3	4	5	Mean (X)	S.D.
PPT rice	70	4	1	0	0	1.08	0.319
RD31(Pathum Thani80) rice	62	12	1	0	0	1.1866	0.425
Pathum Thani 1 rice	64	9	2	0	0	1.1733	0.446

The table data in questions 9 and 10 demonstrate that there are 3 rice varieties that received a low score in any condition. The sample group had a low perception of rice, especially PPT rice, which has the lowest level of awareness and difference ($X = 1.04, 1.08, S.D. = 0.26, 0.32$).

11. In your opinion, to what extent have these approaches facilitated the development and propagation of three novel rice varieties originating from the province of Pathumthani?	1	2	3	4	5	Mean (X)	S.D
Distribution in online applications such as Facebook, Line, TikTok, Instagram, etc.	0	2	6	11	56	4.6133	0.752
Pushing rice is distributed to more convenient locations, including markets, malls, mini-markets, and more.	0	0	7	5	63	4.7466	0.617
An agricultural exhibition dedicated to showcasing the diverse rice varieties cultivated in the province.	0	2	6	8	59	4.6533	0.744
Elevate the quality of rice varieties to meet international standards in establishments such as hotels, eateries, and restaurants.	0	2	5	14	54	4.6	0.736

Hypothesis 2: More than half of the sample group satisfies more than level 4 with awareness of 3 rice varieties from Pathum Thani province through the various questionnaire methods.

The average values reveal that the 75 individuals are most satisfied with all solutions. The average rating of 4.6133 for rice distribution on online applications like Facebook, Line, TikTok, Instagram, and others encourages its distribution to more convenient locations such as markets, malls, mini-markets, and more (4.7466). An agricultural exhibition is dedicated to showcasing the diverse rice varieties grown in Pathum Thani province (4.65) and enhancing the quality of rice to meet international standards in 4-5-star hotels and restaurants (4.6). The average values reveal that the 75 individuals were satisfied with 4 solutions. On online applications such as Facebook, Line, TikTok, Instagram, and others, rice distribution received an average rating of 4.6133. pushing rice to be distributed to more convenient locations, including malls, mini-marts, markets, and more: 4.75, An agricultural exhibition dedicated to showcasing the diverse rice varieties grown in the province: 4.65, and enhancing the quality of rice to meet international standards in 4-5-star hotels and restaurants: 4.6

12.Please provide the price you would want to pay for 1 kilogram of rice.	Quantity	Percentage
Less than 20 baht.	28	37.3%
20-30 baht.	39	52%
30-40 baht.	5	6.7%
40-50 baht.	2	2.7%
More than 50 baht.	1	1.3%
Total	75	100%

Hypothesis 3: The majority (50% of the sample group preferred to make the decision to purchase rice at a price less than 30 baht. Question number 12 of the questionnaires revealed that more than 89.3% of consumers were satisfied at a price less than 30 baht per kilogram (20-30 baht: 52% and less than 20 baht: 37.3%). The statistics below demonstrate the satisfaction of the sample groups related to hypotheses 3.

Discussion

The statistical data from the questionnaire will be analyzed in accordance with the research objectives, as follows:

1.Raise awareness and comprehension of the 3 rice varieties in Pathum Thani Province.

The sample group observed the presence of 3 rice varieties, including PPT rice, RD31 (Pathum Thani 80) rice, and PathumThani 1 rice, in Thanyaburi district, Pathum Thani Province area 4, accessible to convenient locations such as malls, mini-marts, markets, 4-5-star hotels, and restaurants, less than white rice or jasmine rice significantly. As a result, the questionnaire statistics supported the research hypothesis.

2.Analyze potential addresses for promoting the 3 rice varieties through the application of diverse digital transformations. Regarding the questionnaire phase, the results demonstrate that it is a crucial component of the research project. The sample group is completely satisfied with the decisions to support the 3 rice varieties, including PPT rice, RD31 rice (Pathum Thani 80), and PathumThani 1 rice. The solutions involve implementing either online or offline distribution channels and hosting rice exhibitions to enhance awareness of the 3 rice varieties.

3.Improve rice quality to meet international standards in famous locations, including 4-5-star hotels and restaurants. The results in the last part of the questionnaires from the sample group

of this research support the third hypothesis. The majority of the samples supported the 3 rice varieties, including PPT rice, RD31 (Pathum Thani 80) rice, and PathumThani 1 rice, in the 4-5-star hotels and restaurants.

Conclusion

The sample group of 75 individuals in Thanyaburi district in Pathum Thani Province area 4 supported methods and strategies to address the existence of high-quality rice varieties. Although the 3 rice varieties passed trials in the research project in Pathum Thani province, the majority of people in the province perhaps do not approach the convenient locations, even the Future Park Rangsit, which is the largest mall in Pathum Thani province. The sample group answers and opinions supported the research hypotheses that people were unaware of rice varieties. More than half of the participants in the survey have never realized the advantages and benefits of rice varieties in Pathum Thani. Because the minimum wage could not respond to Thai household debts, The results show that over 89% of the sample group's purchasing power cannot purchase rice for more than 30 baht.

Therefore, the challenge of digital transformation is the encouragement of Thai farmers to grow new rice instead of white rice and jasmine rice. They did not have enough budget to take risks from pandemics. The Thai government has approved a budget of 54,336 million baht for 1,000 baht, not more than 20,000 baht for each Thai farmer's family. The government provides support for approximately 4.68 million baht for Thai farmer families. If the digital transformation application can share knowledge, promote a variety of rice, and encourage customer interest in the 3 rice varieties, farmers will be able to receive the budget from the government for generating greater revenue from new rice varieties. Furthermore, digital transformations to the rice industry affect Thai farmers to earn cash from consumers directly through online platforms. (Royal Thai Government, 2024)

In the last part of the questionnaires, the sample group responded positively to the example of digital transformation plans for addressing problems in rice varieties.

The digital transformations into the solutions of the survey, such as distribution in online applications such as Facebook, Line, TikTok, Instagram, etc., pushing rice to more convenient locations, including malls, mini-marts, markets, etc.

hosting agricultural exhibitions to showcase the diverse rice varieties cultivated in Pathum Thani province and elevating the quality of rice varieties to international standards, such as 4-5-star hotels and restaurants.

The solutions implementing digital transformation to increase rice awareness illustrate the behavior of Thai consumers, who advocate for new rice in any aspect of marketing, both online and offline. The majority of Thai individuals conduct orders through devices that can connect to information directly, such as mobile phones. (Rattanachai et al., 2015)

Suggestion

The solutions implementing digital transformations have a positive long-term impact on the Thai rice industry and the sustainable quality of life in the agriculture sectors by requiring the cooperation of either the Thai government or the private sector. Therefore, online channels as well as community channels need to become primary checkpoints for Thai customers who are available on social media. (Campaign Asia, 2024)

Furthermore, digital transformation has a strong effect on the economic cycle of sustainable resources in the local community. (Yin He et al., 2024)

Rice fairs for the customer base of the community in Thanyaburi district, Pathum Thani province area 4, are able to happen through contact with related government organizations

such as the Pathum Thani Provincial Administrative Organization. (Pathumthani Provincial Administrative Organization, 2023)

In addition, the 3 rice varieties, including PPT rice, RD31 (Pathum Thani 80) rice, and PathumThani 1 rice, achieve the objective of raising rice awareness on popular online platforms. Negotiations to promote all of the rice varieties in local restaurants, street food, or famous restaurants will be strongly effective. In the next phase, from the first marketplace on online platforms to micro business strategies for the local community at various types of restaurants in Pathum Thani, Pathum Thani's rice varieties will be ready for discovering wider markets in mini-marts and malls.

Business owners have registered over 1000 minimart businesses in Thailand, ranking from the smallest brand name “Petch Ratchapruek 7-11” with a registered capital of 50,000 baht to the largest brand in Thailand, “CP-All Company,” in Bang Rak district, Bangkok, with a registered capital of more than 8 billion baht. The digital transformations can distribute rice varieties to mini-marts and diverse customers in Pathum Thani.

The difficulty of monopolizing products within mini-marts is because of the amount of registered capital for sales. However, digital transformations to support the new rice products remain a critical factor for establishing a sustainable reputation and customers based on online channels, which motivate agricultural businesses in mini-marts or malls because of efficient consumer demand. (DataforThai, 2020)

The business strategies implementing the digital transformations gained strength from Thai consumers in rice products in the Pathum Thani province. If the research project is affiliated with larger locations, such as a 4-5-star hotel or restaurant, The last step of rice variety awareness enables the rice's international marketing, which attracts a greater number of international tourists. (Lumkam, 2024)

According to rice awareness in Pathum Thani province, Thailand, digital transformation is an important business strategy for creating a demand from Thai people to the Thai government regarding the importance of sustainable and targeted support for Thai farmers. For instance, the Pathum Thani Rice Research Centre certifies high-quality rice, including PPT rice, RD31 (Pathum Thani 80) rice, and Pathum Thani 1 rice, and the Thai government issues policy announcements to provide support or risk insurance to Thai farmers who intend to cultivate the 3 rice varieties as mentioned in the research project. (Baird, 2024)

The subsequent phase of the research article entails the collection of local residents's opinions and requirements regarding the distribution channels for 3 rice varieties, including PPT rice, RD31 (Pathum Thani 80) rice, and PathumThani 1 rice, on online platforms. Therefore, there are initial guidelines in order to consider rice variety awareness among Thai consumers from Pathum Thani province. Regarding the survey collected satisfaction from some customers, the sample group would like to purchase rice at 30 baht or lower because they are concerned that rice products that serve quality health should not affect overall household debt. (Bank of Thailand, 2024)

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