
A creative agricultural resource management to support tourism in Phuket Province

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Mungkhun, M., Pongsuk, P., Intorrathed, S. and Sittijinda, P. (2021). A creative agricultural resource management to support tourism in Phuket Province. *International Journal of Agricultural Technology* 17(2):557-570.

Abstract The results were found that guidelines for developing agricultural resources emphasized the local community participation to promote agro-tourism. There was a group formation to create activities focusing on positive and negative impacts, participation, and self-reliance. Tourism was used as a medium for arranging the management activities of agricultural resources and care-taking of natural resources, benefiting the community and creating value-added agricultural yields. Potential agricultural resources included the value of the body of knowledge, innovation, agricultural wisdom, the value of physical and biological aspects of agriculture, and agricultural resources management by farmers. Meanwhile, potential agricultural resources for tourism included creating and managing agro-tourism attractions. It was also found that the data providers on the potential agricultural resources and tourism potential were statistically significance differed at 0.05 level. It was also found that the difference in the data provider groups affected the various essential supporting services of agro-tourism attractions and agricultural resources with a statistical significance level at 0.05 level. Besides, it was found that the farmer group had different opinions in potentially agricultural resources based on supporting services of agro-tourism attractions compared to the tourism group with a statistical significance at 0.05 level. Moreover, those supporting and promoting agro-tourism had different opinions compared to the farmers' group, with a statistical significance at 0.01 level. An agricultural resource management model for agro-tourism promotion consisted of four main components: 1) management participation, 2) efficiency service, 3) potential, and 4) value and attraction. Besides, there were essential sustainability guidelines that focused on promoting knowledge, participation, self-reliance, and on-going counseling.

Keywords: Agricultural resource management, Creative management, Agro-tourism, Tourist attractions

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Introduction

Tourism activities are diverse and popular in Phuket province, which is vital to the economic system of the country. As an income-generating element, tourism grows rapidly and steadily; therefore, it is beneficial to eateries, hotels, spa services, and tour companies. However, many tourism activities in Phuket province have a negative impact on the environment. Consequently, new forms of tourism, including agro-tourism, community-based tourism, and environmentally friendly tourism, arise as alternatives to increase the number of tourists and develop new tourist attractions and activities. The form of tourism community lifestyle can support sustainable tourism based on creative activities and wise resource utilization, particularly on occupations engaged in agriculture (Sudchokait, 2007), such as buffalo rearing for income-earning (Thabutr and Sipawong, 2016). Besides, orcharding in some areas considers an income for farmers since their orchards are located in the local plant genetics conservation area, such as native durian, rambutan, longan, and Phuket pineapple. Agricultural resources management must be systematically creative to maintain agricultural occupations and plant/animal genetics sources. This creation can begin with local farmers or the community up to the various concerned public and private agencies, leading to sustainable and successful farming as well as tourism and related services.

The Covid-19 pandemic has a negative impact on all aspects of daily life activities, especially on income earning. This pandemic significantly damages the tourism industry and other related occupations, such as employee lay-off, business collapse, and debt burden. Community-based tourism is a policy proposed to help alleviate this problem, and it is aimed to maintain and conserve local, national resources and the environment (Boonchoo, 2018). This focuses on tourism activities consistent with existing local resources and activities such as farming, coastal fisheries, product processing, and production activities under local wisdom.

Phuket province has some occupational groups for the paupers of specific occupations activities, promoting and problem-solving, mainly related to agro-tourism (Choochat, 2010). There is an emphasis on agricultural learning, tourism participation in agricultural learning activities, livelihoods, wise existing resource utilization, and community income greeting. Therefore, Agro-tourism is the conservation together with environmentally friendly tourism. The occurrence of the Covid-19 pandemic partly causes an increase in the expansion of agro-tourism in Thailand. The present study aims to investigate creative agricultural resource management to promote sustainable agro-tourism activities in Phuket province to solve the adverse impacts mentioned above.

The conceptual formwork indicates effective, sustainable management and development of agricultural resources for the tourism of farmers. It is a value-adding of agricultural careers and risk-reducing economic security of the farmers. Besides, it results in the security of other aspects such as quality of farmer livelihoods, increased agricultural yields, production cost reduction, and the defection of agricultural careers as local pearls of wisdom. The form owner must combine various practice methods to meet the standard of sustainable agro-tourism places to benefit the community. It also aims to develop agricultural careers to be consistent with the current economic condition and needs of the community (Phuket Provincial Agriculture Office, 2015). The agricultural resource development for tourism, which focuses on seal-relations and quality agro-tourism plans, is essential to be promoted for sustainability and self-reliance (Sittijinda, 2013; Hawanon, 2007; Pongpit, 2005 and Pongsuk, 2017). The promotion covered various activities, including 1) knowledge management in public and private sectors for the agricultural community development-training, learning promotion, and counseling; 2) farmer participation-earning a living vision and transformation leadership; 3) learning skills. Therefore, sustainability and quality agro-tourism need to manage agricultural resources effectively, but it must be consistent with agro-tourism development (Figure 1).

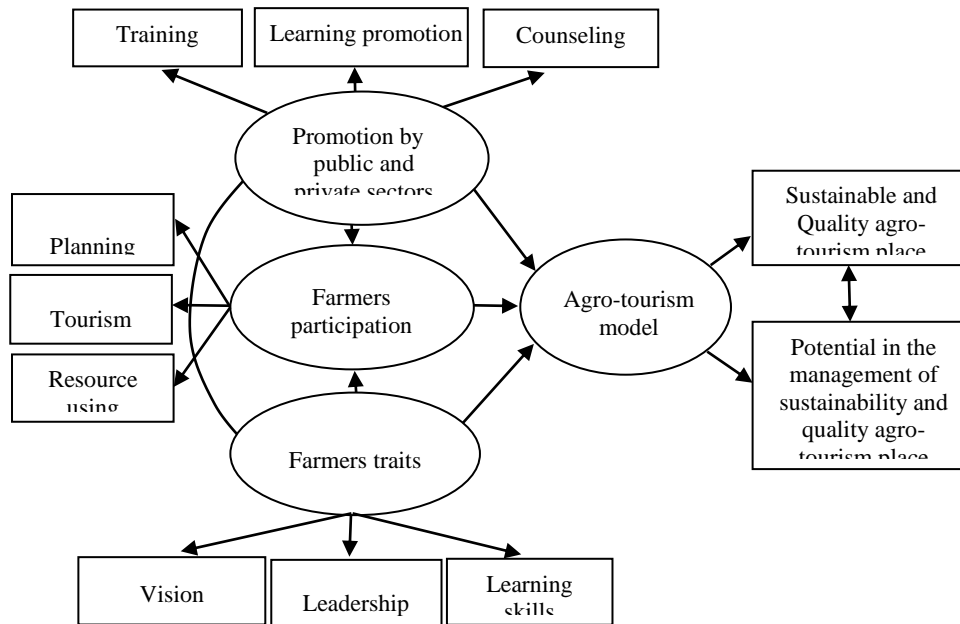


Figure 1. Knowledge management by the public and private factions for the agricultural community development

The management of agricultural resources in the farming areas of Phuket province has much less value than the agro-tourism activities. It is challenging to maintain agricultural wisdom and farmer careers in Phuket province. Consequently, the promotion of farmers to do knowledge management and develop their skills in agricultural resource management using new technology and information (Facebook, Application Line, and YouTube) is the expectation of being successful (Tourism Authority of Thailand Phuket office, 2020).

Materials and methods

The present study used a combined qualitative and quantitative research method for data collection (Brannen, 2005, Creswell, 2015 and Chalabkang, 2017). The first group sample consisted of 49 out of 70 farmers, and they were observed by random cluster sampling. The second one involved 25 promoters and supporters of agro-tourism. The last one consisted of 120 tourists visiting agro-tourism farms. A questionnaire and in-depth interview were used for data collection. The preliminary survey achieved two selected farmers having best practices. An in-depth study was conducted to be an example case. Content validity was conducted, and the IOC range was found at 0.6-1.00 based on consistency with suggestions of specialists. In addition, the agro-tourism activities were conducted during data collection at Phuket Rajabhat University, Phuket provincial Agriculture Office, and Tourism Authority of Thailand Phuket. The activities included training, learning promotion, and counseling, lasting for one year. Subsequently, the counseling activities would be done continually. Data Analyses Descriptive statistics, including frequency, percentage, mean, standard deviation, Chi-square, F-test, One-way ANOVA, Pearson product moment correlation, and Sheffe test were employed. The criteria set for data interpretation (Problems in the management of agricultural resources for tourism) were as follows: (Leekitwattana, 2012).

Score	Mean space	Level of problem
5	4.50 – 5.00 =	Highest
4	3.50 – 4.49 =	High
3	2.50 – 3.49 =	Moderate
2	1.50 – 2.49 =	Low
1	1.00 – 1.49 =	Lowest

Results

A model of agricultural resource management for tourism promotion, Phuket province

According to the qualitative study by survey and in-depth interviews, agro-tourism activities which emphasized in positive and regulative impacts of local community participation. Consequently, farmers must form a group to create coordination and unity, focusing on participation and self-reliance. In this regard, tourism was used as a medium for holding activities on agricultural resources management and creating sustainable value-adding for agricultural yields. These activities were sustainable, and supported by all relevant sectors that focused on creating consciousness of the ecological system conservation. There was the provision of academic data for tourism to recognize the importance of ecological construction. The activities included prophase of agricultural products, performance, photos about life and natural environment, and convenience facilitation led to agricultural career development, quality development of agricultural yields, and history maintenance.

Moreover, there were several guidelines that suggested for the management of agricultural areas as tourist spots. These suggestions included tourism benefits, which would occur in several conditions including holding activities between farmers and tourism, mixed farming, attentions in agricultural areas, local community participation, and supplementary income generating. The community should develop agricultural areas by creating selling points. It should have landscape planning, construction of learning centers, and the trustworthiness of tourism in terms of quality agricultural yields, non-toxic vegetables and fruits, and agricultural yields processing.

The following requirements were beneficial to agricultural resources management for future sustainability.

The agricultural areas of the community to be sustainable tourism attractions must be maintained. It included the following activities: 1) instilling young people to realize on the conservation of nature and environment, 2) holding activities promoting knowledge about agro-tourism and sanitary in tourist alterations, 3) promoting farming together with agro-tourism to emphasize the construction of national resources and environment, 4) creating safety for tourists and good relationships in the community, 5) improving and developing landscape, and 6) creating incomes to the community and building a learning center for integrated persons. Notably, creating a conservation group for natural resources and local identity was the prominent point of local people coordination.

Developing farming areas to be part of the community's agro-tourism places, the farmers who participated in the project clang on guidelines for the community development managed their farms as agro-tourism places, which was consistent with the guidelines of the community. This could help to solve many problems, including 1) capitalist who could not intervene in farmers' farmland, 2) existence of agricultural careers and income earning, 3) conservation of farmland and careers building, 4) assistance on agricultural yield marketing, 5) debt burden of farmers, pollution, and household expenses, and 6) deteriorated soil and wastewater in farmland.

Potential in agricultural resources and agricultural tourism resources of the farmers

The most significant items in terms of value in agricultural resources potential included the body of knowledge, innovation, and agricultural wisdom, and followed by biological agriculture aspects and management of agricultural resources of the farmers, respectively. Furthermore, it was found that the respondents emphasized the allocation of agro-tourism places as a priority, and followed by the management of agro-tourism places of the farmers (Table 1).

Table 1. Levels of potential in agricultural resources and agricultural resources for tourism

Items	\bar{X}	S.D.	Level	Ranking
Potential in agricultural resources				
1. Agricultural physical/ biological aspects	3.81	.76	High	2
2. Body of knowledge, innovation and agricultural wisdoms	3.88	.77	High	1
3. Management of agricultural resources	3.76	.77	High	3
4. Support on service of agro-tourism places	3.50	.72	High	5
5. Attraction of agricultural resources	3.72	.77	High	4
On averages	3.73	.76	High	
Potential in agricultural resources for tourism				
1. Accommodation management of agro-tourism places	3.53	.87	High	3
2. Management of agro-tourism place	3.60	.80	High	2
3. Attraction of agro-tourism place	3.70	.80	High	1
4. Townsmen serves of agro-tourism place	3.49	.78	High	4
On averages	3.58	.81	High	

Cross tabulation and Chi-square were used to examine the relationship between the basic data of the respondents and levels of opinions in the potential

in agricultural resources of farmers in Phuket province. It was found that most of the agricultural extension workers had the highest level of their opinions about the potential in agricultural resources of the farmers (1.36%). Meanwhile, the most group of leaders promoted agro-tourism, farmers, and tourists at a high level of opinions of 6.82%, 14.5%, and 34.55%, respectively (Table 2). Also, there was a statistically significant relationship with the level of opinion about agricultural resources of the farmers at $P = 0.05$ (Table 3).

Table 2. Cross tabulation and Chi-square used for examining the relationship between basic data of the respondents and levels of opinions about potential in agricultural resources

Group of the respondents	Level of the opinions					Total
	Lowest	Low	Moderate	High	Highest	
- Agricultural extension workers	0 (0.00)	0 (0.00)	0 (0.00)	2 (0.91)	3 (1.36)	5 (2.27)
- Group leaders promoting and supporting agro-tourism	0 (0.00)	0 (0.00)	8 (3.64)	15 (6.82)	2 (0.91)	25 (11.36)
- Farmers	0 (0.00)	12 (5.45)	16 (7.27)	32 (14.55)	10 (4.55)	70 (31.82)
- Tourists	0 (0.00)	6 (2.73)	27 (12.27)	76 (34.55)	11 (5.00)	120 (54.55)
On average	0 (0.00)	18 (8.18)	51 (23.18)	125 (56.82)	26 (11.82)	220 (100.00)

Table 3. Chi-square used for examining the relationship between basic data of the respondents and levels of opinions about potential in agricultural resources of the farmers

Items	Value	df	p-value
Pearson Chi-Square	317.817	180	.000*
Likelihood Ratio	223.718	180	.015
Linear-by-Linear Association	.004	1	.950
N of Valid Cases	220		

* $P < 0.05$

The difference between basic data of the respondents and levels of opinions in the potential in agricultural resources of the farmers was examined using F-test, One-way ANOVA, and Sheffe's method. It was found that the difference in basic data of the respondents had affected on the different levels of opinions about the potential in agricultural resources of the farmers with the

statistical significance level at $P=0.05$ (Table 4). It was in terms of support on services of agro-tourism places and attraction of agricultural resources. Besides, it was found that the farmer group having opinions about the potential in agricultural resources based on supporting the services of agro-tourism places which was differed from that of the tourist group ($P=0.006$) with a statistical significance level at $P=0.05$. Meanwhile, the group leaders promoting and supporting agro-tourism had different opinions about the agricultural resources of the farmer group ($P=0.003$) with a statistical significance level at $P=0.05$.

Table 4. Examining variance between the respondent group and levels of opinions about potential in agricultural resources of the farmers

	Variance Value	F	Sig
Value on agricultural physical/ biological aspects			
- Between groups		.628	.454
- Within group			
Value on body of knowledge, innovation and agricultural wisdoms			
- Between groups			
- Within group		.472	.703
Management of agricultural resources of the farmers			
- Between groups		.334	.801
- Within group			
Support on services of agro-tourism places			
- Between group		.823	.004*
- Within group			
Attraction of agricultural resources			
- Between group		.685	.000*
- Within group			

* $p < 0.05$

The relationship between potential and agricultural resources management of the farmers was examined using Pearson product moment correlation. The correlation coefficient value between potential, and agricultural resources management of the farmers were found in the range of .047-0.849. The potential in the body of knowledge, innovation, agricultural wisdom, support on services of agro-tourism places, and attraction of agricultural resources had a positive relationship with a statistical significance level at $P=0.01$. Meanwhile, the potential in biological agriculture aspects and agricultural resources management of the farmers had a positive relationship without a statistical significance level (Table 5).

Table 5. The relationship between potential and agricultural resources management of the farmers

Potential in agricultural resources	A	B	C	D	E	F
1. Value on agricultural physical/ biological aspects	1.000	0.315**	0.016	0.121	0.018	0.047
2. Value on body of knowledge, innovation and agricultural wisdoms		1.000	-0.002	0.279**	0.205**	0.146**
3. Management of agricultural resources of the farmers			1.000	0.769**	0.662**	0.849
4. Support on services of agro-tourism places				1.000	0.734**	0.831**
5. Attraction of agricultural resources					1.000	0.813**
6. Agricultural resource management of the farmers						1.000

** A statistically significant relationship at 0.01, A = Value on agricultural physical/ biological aspects, B = Value on body of knowledge, innovation and agricultural wisdoms, C = Management of agricultural resources of the farmers, D = Support on services of agro-tourism places, E = Attraction of agricultural resources, F = Agricultural resource management of the farmers

A model of agricultural resource management for tourism promotion

This comprised four main components were included the management participation, efficient service, potential of tourist attraction, value and attraction with summarized in Table 6 and those of the elements are related and shown to be linked to each other in form of the agricultural resources management to promote tourism (MEPV) as shown in Figure 2.

Table 6. Components of a model and guidelines for agricultural resource management to promote agro-tourism

Components	Guidelines for agricultural resource management to promote agro-tourism
1. Management Participation	1.1 Safety management for tourism
	1.2 Waste and garbage management in tourist attractions
	1.3 Acceptance and coordination with surrounding communities
	1.4 Networking for tourist attraction support
2. Efficiency Service	2.1 Tourist reception and feminization
	2.2 Description of activities in tourist attractions
	2.3 Diversity of activities in tourist attractions
	2.4 Provision of knowledge service and form practice demonstration
3. Potential of tourist attraction	3.1 Arrangement of working routes in tourist attractions
	3.2 Readiness of infrastructure
	3.3 Readiness preparation of personnel to support tourist
	3.4 Fixing a number of tourists to fit the accommodation potential of tourist attractions
4. Value and Attraction	4.1 Beautiful nature of tourist attractions and landscape is harmonious having diversity
	4.2 Connectivity of tourist attractions having diversity
	4.3 Prominence and diversity of agricultural products
	4.4 Learning ways of life or joining activities with farmers

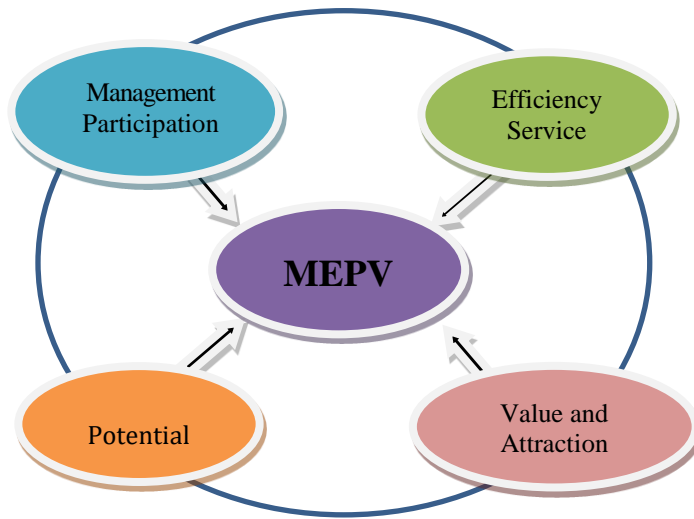


Figure 2. A model of agricultural resource management to promote agro-tourism

Discussion

According to the study on creative agricultural resource management to promote sustainable agro-tourism activities in Phuket province, four principal components were gained by investigating the potential of agricultural resources and agricultural management for agro-tourism.

Management participation could be a guideline for managing waste and garbage, coordinating with surrounding communities, and networking to support tourist attractions, corresponding to the concept of farmland development to be a tourist attraction. It is a job opportunity for local people and income-generating, which results in economic expansion. This includes the promotion of infrastructure development (Kaewsua Nga and Jamnongsri, 2012). Thus, agro-tourism is a form of tourism that encourages tourists to have an opportunity to learn the ways of the farmers and their farming methods. Meanwhile, agro-tourism gives tourists a chance to experience novel things, such as tropical cultivation, harvest, and eating fusion food (Chuenroongrot, 1987). In addition, agro-tourism for developing agricultural sources as agro-tourism places requires three fundamental factors, including motivation, readiness, and local people, which must be coordinated by the community and business organization (Phuket Provincial Agriculture Office, 2015). Indeed, agro-tourism needs to integrate all concerned parties of both public and private sectors as well as the civil society and the community for the highest benefit. It

also aims to maintain the sustainable world-class marine tourism center and create value-added agricultural products in the areas (Phonphiphat, 2012), and Wonghanchao (2001) suggested the guidelines suggested for making farmland a part of agro-tourism could maintain soil resources and the environment under self-reliance and local wisdom. This was important for food-producing areas and local wisdom on local agricultural careers. Therefore, the potential development of agro-tourism should be encouraged by arranging farmland and its environment to be a tourist spot, which includes beautiful landscape, preparation of the body of knowledge related to farming, diverse farming, and tourism activities. The farmers themselves must be active and knowledgeable about agricultural management, using innovative technologies for agricultural production and marketing.

Efficient service involves practical management activities and services. The managed activities must be effectively based on reception and familiarization with tourists. Furthermore, the activities must be described to tourists for knowledge entertainment purposes. Farm work practice must be demonstrated to satisfy the curiosity of tourists. There are researches of Thaisom *et al.* (2012), Na Songkhla (2013) and Songsoonthornwong (2013) which supported their concepts. This is mainly on farm design for tourists, the agricultural area development process for tourism, management, and convincing other people to perceive agro-tourism benefits. The management of agricultural resources and tourism activities can be explained in alternative agriculture with the sustainability of resource conservation. Notably, the management of agricultural resources and culture will lead to sustainable agricultural community development even though it does not have many profits.

The potential of tourist attractions is a component used as a guideline for management, which includes arranging walking routes in tourist attractions, the readiness of infrastructure and personnel to accommodate tourists, and fixing several tourists to fit the accommodation potential of tourist attractions. In other words, it is a guideline for creative tourism that is consistent with the context of Thai tourism. This consists of five steps of the development process, including understanding the value of culture, creating prominence and differentiation, discernment of the market, enhancing value for tourism products, and adjusting market development strategies. This was confirmed by a study conducted by Det Um (2013) and Yothakhong (2013). Furthermore, the allocation of convenience facilities is essential for developing farmland as a tourist attraction because the primary intention of tourists is to relax and comfort. Importantly, the convenience facilities must be appropriated with the sex and age of tourists. For communication, the internet is an effective electronic media for

convenience and rapidness in the communication of tourists Photo-taking, for instance, the beautiful picture of farmland can be passed to tourists, friends, and relatives. It is one way of public relations which the farm owner does not need to pay for it (Toomhirun, 2013 and Kanjina, 2021). Consequently, farmers can plan for their farmland development to be tourist attractions, if they truly perceive the potential of their farmland and geographical advantage.

The value and attraction are also used as a guideline for the management of beautiful natural surroundings, landscape, prominence/diversity of agricultural products connectivity of diverse tourist spots, and learning livelihoods of farmers. Det Um (2013) found that creative thinking and earning a living through agriculture are new forms that the farmer must realize their career development. Examples include creative agricultural production, attention to nature and the environment, and the creation of quality agricultural yields. Roongphiphattanapong (2014) found that creating prominence of a farm for tourism is a special trait of a farm that can impress tourists.

Therefore, farmers can develop their farms to be a creative tourist attraction with novelty that can attract tourists. It can be a channel for supplementary income-earning and career security of farmers, which their offspring will perceive the importance and benefits of farmland as a tourist attraction. In other words, this can be developed for sustainable progress and increased incomes leading to self-reliance. It based on coordination and participation of farmland owners, local people, and all concerned agencies, as well as local/agricultural wisdom for self-reliance and sustainability.

Acknowledgements

The researchers are grateful to agencies supporting this study and help make it into shape. We want to thank the conservative agricultural tourism group at Baan Bangrong, Phuket Provincial Agriculture Office, and Maneerat Farm for their kind support and coordination.

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(Received: 16 February 2021, accepted: 7 March 2021)