

Monitoring and Evaluation to Develop Preliminary Rice Cultivation Curriculum of the School of Rice and Farmers, Rice Department, Ministry of Agriculture and Cooperatives, Thailand

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ABSTRACT

This study aimed to monitor and evaluate outcomes of the preliminary rice cultivation curriculum of the School of Rice and Farmers, Department of Rice, Ministry of Agriculture and Cooperatives. The sample group in this study included 159 farmers obtained by simple random sampling. A set of 5-scale-rating questionnaires was used for data collection and analyzed content analysis and descriptive statistics. Also, F-test was used for the comparison of a level of adequacy in lecture/practice hours. Results of the study were as follows: 1) Most of the respondents were male, 46-56 years old, bachelor's degree holders rice farmers, and business owners. They perceived that the adequacy in, lecture/practice hours were at a moderate level (6 subjects) and could be utilized at a high level. However, rice growing, nutrient analyses, and fertilizer application was found at a moderate level. and 2) It was found that the difference in a level of adequacy in 5 lecture classes and 1 practice class had no effect on a level of utilization except the difference in Accounting for a Sustainable Farm subject based on theory/lecture class had an effect on the difference in a level of utilization with a statistical significance level at .01. Meanwhile, the difference in a level of adequacy in practice hours of nutrient analyses and fertilizer application had an effect on the level of the difference in utilization with a statistical significant level at .05

Keywords

preliminary rice cultivation curriculum, school of rice and farmers, monitoring and evaluation, rice farmers

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Introduction

Rice is the most important cash crop in Thailand generating an income for more than 200,000 million baht per year. Farmer families have agricultural areas for 109, 620, 259 rai or 34 percent of the country's area. However, only 24, 804, 220 rai access irrigation and the rest (84, 216, 039 rai (77%) are under rain fed condition. In fact, rice growing is the occupation of most people in the country (4, 190, 144 households) or 72 percent of agricultural households across the country (Jernsittiparsert, Sriyakul, & Rodoonsong, 2013). About one-third of all household heads are 61 years old and above and each household comprises 4 member on average. More than one-half of the household heads are Prathomsuksa 4 graduates (Lower elementary school graduates). Hence, it can be said that Thai farmer households are become to be in the ageing society. Due to their low educational attainment, there are problems in knowledge transfer about rice production technology adoption promoted by concerned government agencies (Pongsihadulchai, 2013).

Thai rice farmer problems have been accumulating for more than 40 years since the country puts the importance on industrial development. The crisis confronted by Thai rice farmers comprises many aspects such as debts due to a low price of rice, environmental destruction, and infertile soil. In addition, main causes of this crisis comprise the following: thinking system, emphasis on growth of agricultural products export, mono farming extension; lack of the policy

having social basis and body of knowledge having consistence with the context; and lack of farmer participation in the public policy determination on the country rice goods management making the middleman plays roles in pricing and control. Also, contract farming mostly takes advantage of the rice farmers. Not only this, many aspects of the government policy give an opportunity to overseas agricultural business companies to be a stakeholder. This has a negative effect on small-scale rice farmers in a long-term as well as their occupational security and food security of the Thai society.

Regarding the educational system, it should play an important role in the creation of social awareness to the Thai society. This helps prevent or solve the crisis problem of Thai rice farmers. However, it seems that formal education in the country cannot develop learning quality to be consistent with problems, needs, and a way of life rice farmers. The current agricultural education curriculum in Thailand lacks of consistency with the Thai context (Plainoi, 2012). Thai is, graduates in Agriculture are mostly not engaged in agricultural occupations or they do not have potential enough (Pongsihadulchai, 2013). Therefore, concerned government agencies in rice farmer development should provide a forum for the farmers to access various appropriate bodies of knowledge. This is particularly on rice educational facilitation in the process of the Rice and Farmers school.

The specialized learning facilitation is a Type of education aiming to make learners to have knowledge, capability, and

skills in a specific profession in accordance with needs of various agencies. This has to rely on the teacher who specializes in a particular field of the profession. In Thailand, there are many organizations offering a specific field of study for a long time and they are recognized in terms of roles and potential in producing personnel. The National Education Act of 1999 indicated that any ministry, department, state enterprise agency, and government agency can facilitate a specific field of education in accordance with their needs and skills (Constitution Drafting Committee, 2016). Thus, it can be said that the learning facilitation process of the Rice and Farmers school is an alternative of Thai rice farmers.

The Rice and Farmers school was established on 5th November, 2013 under the supervision of Rice Department, Ministry of Agriculture and Cooperative (Rice Department, 2013). It covers an area of about 20 rai in Kasetsart University, Bangkok and offers training programs and learning exchange venues among farmers and academicians of Rice Department. The training programs are of 4 curricular programs: basic rice growing, the professional rice farmer, rice processing and value-added, and rice technology. There are 217 farmers passing the training programs during 2014-2017 (Rice Department, 2017). In order to develop the training programs to be modern and up-to-date, there monitoring and assessment of those passing the training programs of the Rice and Farmers school.

Objective of the Study

Specifically, this study aimed to monitor and assess the farmers passing the training program in basic rice growing to develop its curricular program.

Conceptual framework

The Rice and Farmers school's training programs had two parts: lecture (6 subjects 16 hours) and practice (4.5 hours) and it was used as a basis for designing the conceptual framework of this study.

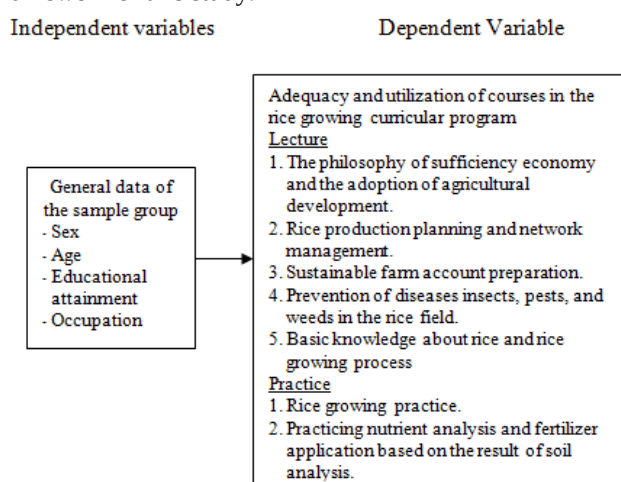


Fig. 1. Conceptual framework of the study

Scope and Delimitation of the Study

Population and Sample Group

1) The population in this study were 217 farmers passing the basic rice growing training program during 2014-2017.

2) The sample group in this study consisted of 159 farmers passing the basic rice growing training program obtained by multi-stage sampling. The determination of the sample group size was in accordance with that of Krecie and Morgan (Leekitwattana, 2016: p.147)

Variables

1) Independent variables included sex, age, educational attainment, and occupation.

2) Dependent variable included adequacy and adoption of basic rice growing subjects.

Content

Content of course outlines of the basic rice growing training program designed by the Rice and Farmers school.

Research Instrument

The research instrument in this study was questionnaire consisting of 3 parts as follows:

Part 1: General data of the respondents.

Part 2: An assessment of adequacy and adoption of course outlines of the basic rice growing training program (Three rating scale-high, moderate and low).

Part 3: Open-ended questionnaire related to needed knowledge about rice growing and suggestions.

The questionnaire was in the form of levels of adequacy of a number of lecture hours and practice hours and the details were as follows:

Lecture Session

- The philosophy of sufficiency economy and adoption for agricultural development (3 hours)
- Rice production planning and network management for coordination (2 hours)
- Sustainable farm account preparation (2 hours)
- Prevention of disease, insects, pests, and weeds in the rice field (3 hours)
- Basic knowledge about rice, rice growth performance, and rice growing process (3 hours)
- Information technology about agriculture (3 hours)

Practice Session

- Rice growing practice (1.5 hours)
- Nutrient analysis practice and fertilizer application based on the result of soil analysis (3 hours)

The score criteria and interval was computed by using the mathematical equation: interval width = the highest score - the lowest score/a number of intervals and width of the interval was at 0.80 (Roengprapan, 2000: p.30) as follows:

The scholars checked the questionnaire in terms of correctness and consistency (IOC = 0.86) and it was improved based on suggestions of the scholars.

Research Methodology

Data were collected from the sample group through mail and direct collection. Content analysis and descriptive statistics (percentage, mean, standard deviation) as well as F-test were employed in this study.

Results of the Study

1. General data of the respondents

Table 1. General data of the respondents

Item	(n = 159)	%
Sex		
- Male	91	57.23
- Female	68	42.77
Age		
- Less than 26	2	1.26
- 26 - 35 years	32	20.13
- 36 - 45 years	30	18.87
- 46 - 56 years	48	30.19
- 56 - 65 years	38	23.90
- 66 years and above	9	5.65
Educational attainment		
- Elementary school	11	6.92
- Lower secondary school	3	1.89
- Upper secondary school or equivalent	24	15.09
- Junior degree or equivalent	14	8.81
- Bachelor's degree	85	53.46
- Master's degree	22	13.84
Occupation		
- Rice grower	51	32.08
- Government official	20	12.58
- State enterprise employee	6	3.77
- Employee	15	9.43
- Business owner	48	30.19
- Other	19	11.95

2. Adequacy and adaption of course outlines of the basic rice growing program

Table 2. Adequacy level of a number of learning hours

Item	(n = 159)	%
Lecture session		
1. The philosophy of sufficiency economy and adoption for agricultural development (3 hours)		

- Too few	1	0.63
- Appropriate	138	86.79
- Too many	20	12.58
2. Rice production planning and network management for coordination (2 hours)		
- Too few	20	12.58
- Appropriate	129	81.13
- Too many	10	6.29
3. Sustainable farm preparation (2 hours)		
- Too few	8	5.03
- Appropriate	138	86.79
- Too many	13	8.18
4. Prevention of diseases, insects, pests, and weeds in the rice field (3 hours)		
- Too few	18	11.32
- Appropriate	125	78.62
- Too many	16	10.06
5. Basic knowledge about rice, rice growth performance, and rice growing process (3 hours)		
- Too few	18	11.32
- Appropriate	125	78.62
- Too many	16	10.06
6. Information technology about agriculture (3 hours)		
- Too few	11	6.92
- Appropriate	127	79.87
- Too many	21	13.21
Practice Session		
1. Rice growing practice (1.5 hours)		
- Too few	43	27.04
- Appropriate	100	62.89
- Too many	16	10.06
2. Practicing nutrient analysis and fertilizer application based on the result of soil analysis		
- Too few	36	22.64
- Appropriate	105	66.04
- Too many	18	11.32

Table 3. Utilization of course outlines of the basic rice growing program

Item	Adoption level		
	$\bar{X}$	S.D.	Level
Lecture			
1. The philosophy of sufficiency economy and adoption for agricultural development (3 hours)	3.70	0.70	High
2. Rice production planning and	3.72	0.69	High

network development for coordination (2 hours)					
3. Sustainable farm preparation (2 hours)	3.75	0.70	High		
4. Prevention of diseases, insects, pests, and weeds in the rice field (3 hours)	3.68	0.64	High		
5. Basic knowledge about rice, rice growth performance, and rice growing process (3 hours)	3.70	0.70	High		
6. Information technology about agriculture (3 hours)	3.66	0.65	High		
Practice					
1. Rice growing practice (1.5 hours)	3.69	0.72	High		
2. Practicing nutrient analysis and fertilizer application based on the result of soil analysis (3 hours)	3.77	0.69	High		

information technology and agriculture and the philosophy of sufficiency economy courses were too many. This might be because they were familiar with it in daily life activities. Some respondents (12.58%) perceived that the lecture hours of rice production planning and network management for coordination were too few. This might be because they learning content covered a wide range of the rice management system. Thus, the learning content should be sorted into sub-issues so that it would be easy to learn. Regarding the practice session, most of the respondents claimed that the number of practice hours was good enough for the two course: nutrient analysis and fertilizer application (66.04%) and rice growing practice (62.89%). However, some of the respondent claimed that the practice hours were too few (27.04 and 22.64%, respectively). This might be because the practice is interesting and beneficial to them. In fact, there are many methods of rice growing but the respondents only practiced rice planting. Hence, it must be improved in terms of rice growing methods so that it would be consistent with the philosophy of agriculture in education.

In addition, some respondent stated that their gained knowledge could be adopted at a high level in all courses. This might be because they intend to participate in the trained session and it was a new body of knowledge which the respondents had never learned. Regarding the adequacy level of learning hours and adoption, there was difference in live courses but had no effect on the adoption. For the sustainable farm account preparation course, however, the difference in the lecture session had an effect on the level of adoption with a statistically significant difference level at .01. Most of the respondents (86.78%) stated that the number of learning hours was appropriate with a high level of adoption ($\bar{X} = 3.75$). This might be because the sustainable farm account preparation course could be applied to other matters. It was found that the difference in the adequacy of practice hours in nutrient analysis and fertilizer application had an effect on the adoption with a statistically significant difference level at .05.

About one-fifth of the respondents (22.64%) stated that the lecture hours were too few but it had a high level of adoption ($\bar{X} = 3.77$). They also claimed that the nutrient analysis and fertilizer application course was vital. This was because soil and fertilizer factors had an effect on agricultural yields and the reduction of production costs. An analysis of nutrients in the soil could be applied to other crop growing and could be practiced by farmers.

Regarding suggestions of the sample group, the following were found: Learning content of some subjects is too academic to learn so it should be transferred in the form of an easy language. This was particularly on the prevention of diseases, insects, pests, and weeds in the rice field. Besides, it should have a continual program for reviewing the training or a meeting with academicians to share and solve problems particularly on diseases and pests.

Suggestions

1. Adding a number of hours of rice growing practice.

Table 4. A comparison of the level of adequacy of learning hours and the level of utilization

Item	Adequacy level of learning hours						F statistic	Sig
	Low		Moderate		High			
	$\bar{x}$	S.D.	$\bar{x}$	S.D.	$\bar{x}$	S.D.		
Lecture								
1. The philosophy of sufficiency economy and adoption for agricultural development (3 hours)	4.00	0.00	3.67	0.69	3.95	0.75	1.49	0.22
2. Rice production planning and network development for coordination (2 hours)	3.85	0.93	3.69	0.65	3.90	0.56	0.80	0.44
3. Sustainable farm preparation (2 hours)	3.00	0.53	3.75	0.70	4.23	0.43	8.13	0.00**
4. Prevention of diseases, insects, pests, and weeds in the rice field (3 hours)	3.61	0.60	3.68	0.67	3.75	0.44	0.19	0.82
5. Basic knowledge about rice, rice growth performance, and rice growing process (3 hours)	3.72	0.89	3.68	0.69	3.88	0.61	0.54	0.58
6. Information technology about agriculture (3 hours)	3.91	0.30	3.64	0.66	3.67	0.73	0.87	0.42
Practice								
1. Rice growing practice (1.5 hours)	3.58	0.79	3.68	0.68	4.06	0.68	2.69	0.07
2. Practicing nutrient analysis and fertilizer application based on the result of soil analysis (3 hours)	3.47	0.73	3.84	0.68	3.94	0.53	4.56	0.01*

* Statistically significant difference at 0.05

** Statistically significant difference at 0.01

Conclusions and Discussions

More than one-half of the respondents (57.23%) were males, bachelor's degree holders (53.46%). About one-third of the respondents (30.19%) were 46.56 years old, rice farmers (32.08%), and business owners (30.19%). There were more males than females because agricultural occupations are hard and it needs workforce. More than one-half of the respondents were bachelor's degree holders because the training place is located in the city. The number of the respondents who were rice farmers and those who were business owners was almost the same which implied that the business owners began to be interested in agriculture and nature and they might turn to do farming in the future.

The respondents stated that the lecture session was enough based on all 6 subjects as follows: 1) the philosophy of sufficiency economy and adoption for agricultural development (86.79%). 2) sustainable farm account preparation (86.79%). 3) rice production planning and network management for coordination (81.13%). 3) Information technology and agriculture (79.87%). 4) Prevention of diseases, insect, pest, and weeds in the rice field (78.62%). 5) Basic process (78.62%).

Most of the respondents thought that these subjects were good enough. For example, basic rice growing was appropriate with those who had never grown rice. However, some respondents stated that lecture session hours of

2. Making the farmers have a better understanding by using appropriate communication methods and simple language.
 3. Forming a network or group of those passing the training program for learning exchange of the training.
 4. Continual monitoring to enhance a body of knowledge needed to be learned.
- Improving the training curricular program for every 3 years so that learning content will be consistent with current situations

References

- [1] Jermstittiparsert, K, Sriyakul, T., & Rodoonsong, S. (2013). Power(lessness) of the State in the Globalization Era: Empirical Proposals on Determination of Domestic Paddy Price in Thailand. *Asian Social Science*, 9(17), 218-225. DOI: 10.5539/ass.v9n17p209.
- [2] Constitution Drafting Committee. (2016). *Constitution of the Kingdom of Thailand*. Bangkok: Constitution Drafting Committee.
- [3] Leekitwattana, P. (2016). *Educational Research Methodology*. Bangkok: Mean Service Supply Limited Partnership.
- [4] Plainoi, N. (2007). *Education and Alternative knowledge in Independent Being: Process and Practice in Farmer School*. Nakhon Pathom: Faculty of Social Science and Humanities, Mahidol University.
- [5] Pongsihadoonchai, A. et.al. (2013). *A Study on Problem, Economic, Social, Cultural Conditions and Needs of Farmers*. Bangkok: Research and Development Institute of Kasetsart University.
- [6] Rice Department. (2013). *Rice Department Ordered Issued (652/2013) on the establishment of Farmer and Rice School*, issued on 5th November, 2013.
- [7] Rice Department. (2014). *Implementation Annual Report, 2016-2017 of Farmers and Rice School*. Bangkok: Agricultural Cooperative Club of Thailand.
- [8] Rice Department. (2017). *The 2016-2017 Annual Report of Rice and Farmer School*. Bangkok: The Agricultural Cooperative Club of Thailand.
- [9] Roengprapan, C. 2000. *Basic Statistics with Samples of an analysis Using Minitab SPSS and SAS Programs*. Khonkaen: Khonkaen University.
- [10] The 1999 National Education Act, 2nd revision in 2002 and 3rd revision in 2010. *Government Gazette*, No.116. Part 75th section A (28th August, 1997).