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MOTIVATION TOWARD THE EXTENSION OF ORGANIC RICE PRODUCTION IN NORTHEAST THAILAND

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ABSTRACT

Purpose- Organic rice growers have continued their lives and organic agriculture way of production firmly, although there is a common way of rice production by using chemical fertilizers and pesticides in Thailand. Movtivation of these organic growers will be explored for concerned organizations to encourage more organic production in the country. Surin and Yasothon provinces were the study area as there is a large number of organic rice production in these 2 provinces.

Methodology- Descriptive and quantitative analysis by Multiple regression analysis are applied.

Findings- The results showed that the most influential factors that motivated organic production was due to farmer's opinion that organic agriculture is the way of sustainable production mode, a good relationship within the household and no excessive resources compared with chemicals. In addition, government support, health concern, organic being the new production trend, and cost reduction were also statistically significant factors.

Conclusion- Facilitation from concerned organizations to motivate farmers to extend their production area from these factors are recommended.

Keywords: Motivation, organic rice, Surin and Yasothon, Thailand, multiple regression analysis.

JEL Codes: P48, Q13, R11

1. INTRODUCTION

The promotion of organic rice production in Thailand has been undertaken since the 8th National Plan of Thailand (1997-2001), aiming at changing the area of conventional rice production to be organic production, using organic fertilizers and biological pesticides (Mingchai and Yossuck, 2008). Although there was an encouragement from public sector and NGOs, an importation of agricultural chemicals such as chemical fertilizers, growth hormones, chemical pesticides, and herbicides increased continuously. Control of chemical pesticide importation was implemented in the 10th National Plan (2007-2011), however, it was increased at the end of the Plan (Tawatsin et al., 2015). It is indisputable that chemical residue was found in soil, water resources, and agricultural products, especially of rice which was the major economic crop, and a source of earning for the Thai farmer's households and for the country.

Organic rice production in Thailand was declined in 2007-2008, due to political instability in Thailand, causing a reduction of organic production area (Green Net 2008). Government subsidy also seriously affected organic agriculture through insured

rice price that was higher than the market, causing the reduction of 11.2% from 2011 to 2012 (Green Net, 2013). Rice mortgage policy in might be an obstacle of rice production in the organic way. However, there were groups of organic farmers separated in the remote areas all over the country continued organic rice production. Motivation factors behind are the crucial issues to analyze in order to promote or to encourage an extension of organic rice production in Thailand.

2. LITERATURE REVIEW

Organic production in developing countries is a tool of socio-economic development and is supported by various international and national development agencies (Kilcher & Echeverria, 2010). There are factors that support the growth of organic production, resulted in benefits in various aspects (Brodth & Schug, 2008), especially on economic and non-economic (Lampkin & Padel, 1994). Profitability gains compared to conventional system (MacRae et al. 2007), lower production costs, especially in terms of external inputs while using more farmer's labors (Qiao et al. 2016), though yielding less (MacRae et al. 2007; Lotter, 2008) and price premiums have been repeatedly reported in many studies. Non-economic benefits have been reported for the conversion to organic production. They are social dimension, including human relationship in the rural, health and environmental reasons. There are examples of some studies relating rural vitality (Mzoughi, 2011; Lasley et al. 1993; Bird et al. 1995), advancement of human skills on problem-solving and self-reliance which can mobilize local community (Flora, 1995), more community involvement (MacKinnon 2006), as well as health and environmental concerns (Bryne et al., 1991; Koesling et al., 2008; Padel, 2001; Hanson et al., 2004; Stofferahn, 2009; Khaleli et al, 2010) However, there were studies suggesting that profit motives were stronger than environmental motives (Carr & Tate, 1991; Newman et al., 1990). Therefore, concerning merely social and environmental attitude may not enough for the continuation of organic farming.

Due to the organic trend, the study of McEachern & Willock (2004) found that there was strong producer optimism about the future of organic farming as it was the "market forces" as well as "policy." Some studies in Thailand that were related to the decision for organic production are such as the paper of Vidyarthi et al. (2009). It was indicated that the conversion factors to do organic vegetable farming in Thailand were young age & higher education of farmers, labor availability, availability & ownership of land, availability of marketing channel, ownership of livestock, availability of credit, and training on organic farming techniques. Pornpratansombat et al. (2011) indicated that the early organic adopter may have better access to water, ability to find higher prices, and stronger attitudes toward conventional farming problems. In addition, to the finding of Mzoughi (2014), Organic farmers had higher levels of life satisfaction, compared to conventional farmers. This was positively associated with income, profitability, satisfaction at work, social recognition, and good health.

3. DATA AND METHODOLOGY

Samples from 336 respondents in this study were organic rice farmers in Surin and Yasothon provinces, the major areas of organic rice production and exportation in the northeast Thailand. They got "Organic Thailand" certification from Thailand's Department of Agriculture or got organic certification for exports from the National Bureau for Commodity and Food Standards (ACFS) in the year 2012-2013. A purposive sampling was deployed by using questionnaire. Descriptive statistics used were such as percentage, mean, and standard deviation. Multiple regression analysis (MRA) was applied to consider 11 items of motivation factors, exploring which motivation could help promote organic production area. MRA formula in this study was as follow:

$$Y = b_0 + b_1X_1 + b_2X_2 + \dots + b_nX_n + e_i$$

Where Y	= area of organic production in "rai" unit (dependent variable)
b_0	= constant
b_1, \dots, b_n	= coefficients
X_1, \dots, X_n	= motivation factors to perform organic production (independent variables)
e_i	= residuals

There were 11 items of motivation factors were cost reduction (X_1) good relationship in the household (X_2), increasing revenue (X_3), demand for organic products from the buyers (X_4), buyers can pay more (X_5), organic is the new production trend (X_6), health concerns (X_7), no excessive resources compared with chemicals (X_8), the way of sustainable production mode (X_9), afraid of chemical danger (X_{10}), and government support (X_{11}).

4. FINDINGS AND DISCUSSIONS

Personal information of the respondents was shown in Table 1. In each household, there were about 3 members on average. Average farming area was about 15.91 rai/household (about 2.54 ha/household). Transition period from chemical method to organic method was around 2 years and 8 months. Average experience years on rice production was about 29 years and experience years on organic rice production was about 7 years. Yield per rai was about 413.70 kilograms, and price per kilogram was 20.24 baht on average.

Table 1: Personal Information of the Respondents

Personal information	No. of persons (N = 336)	%
gender		
male	199	59.2
female	137	40.8
Education		
primary	275	81.8
junior high school	19	5.7
high school	28	8.3
diploma	4	1.2
bachelor	10	3.0
Marital status		
married	264	78.5
divorced	57	17.0
single	11	3.3
separated	4	1.2
Family structure		
Nuclear family	307	91.4
Extended family	29	8.6
Age (years of age)		
minimum	27.0	
maximum	78.0	
average	54.2	
S.D.	8.5	
Family members) persons)		
minimum	1.0	
maximum	10.0	
average	4.8	
S.D.	1.6	

Regarding the reasons of conversion to organic production, they informed that major reasons were health concern, help cost reduction, and environmental concern, respectively. There were 5 motivation factors which were in the “most

important" level were the government support, health concern, afraid of chemical danger, cost reduction, and organic is the sustainable way of production, while the other 6 motivation factors were in the "important" level (Table 2).

Table 2: Motivation Factors of the Respondents to Do Organic Rice Production

Motivation factors	\bar{x}	S.D.	Level of motivation*
Government support	4.57	0.68	Most important
Health concerns	4.55	0.57	Most important
Afraid of chemical danger	4.26	0.68	Most important
Cost reduction	4.23	0.59	Most important
Way of sustainable production mode	4.21	0.62	Most important
Good relationship in the household	4.16	0.57	Important
Organic is the new production trend	4.14	0.63	Important
Demand from the buyers	4.11	0.65	Important
Increasing revenue	4.11	0.59	Important
no excessive resources compared with chemicals	4.05	0.59	Important
Buyers can pay more	4.01	0.66	Important

* level of motivation was categorized into 5 levels, depending on the range of average scores from 1.00 to 5.00 point scale. "Important" level score was ranged from 3.40-4.19, while "Most important" level score was ranged from 4.20-5.00.

The correlation coefficient matrix was presented in Table 3, indicating that all the independent variables were within the acceptable range, meaning that they were not over 0.75, implying that there was no multicollinearity.

Table 3: Inter-Correlation Matrix among Independent Factors for the Analysis

	X ₁	X ₂	X ₃	X ₄	X ₅	X ₆	X ₇	X ₈	X ₉	X ₁₀	X ₁₁
X ₁	1.000	0.652	0.675	0.571	0.449	0.524	0.242	0.401	0.597	0.472	-0.138
X ₂		1.000	0.585	0.588	0.603	0.613	0.310	0.481	0.628	0.578	-0.045
X ₃			1.000	0.624	0.487	0.552	0.275	0.512	0.538	0.461	-0.086
X ₄				1.000	0.674	0.605	0.321	0.497	0.568	0.442	0.011
X ₅					1.000	0.547	0.356	0.512	0.521	0.424	0.035
X ₆						1.000	0.322	0.477	0.546	0.505	-0.022
X ₇							1.000	0.290	0.230	0.208	0.130
X ₈								1.000	0.401	0.430	-0.019
X ₉									1.000	0.703	-0.012
X ₁₀										1.000	-0.104
X ₁₁											1.000

Analysis of motivation factors that influencing an extension of organic production area by multiple regression analysis (MRA) was shown in Table 4. There were 7 motivation factors that had a direct effect on an extension of organic area, while the rest 4 factors had no significant direct effect on it.

Table 4: MRA on Motivation Factors Influencing an Extension of Organic Production Area

Variables	coefficient (b)	Std. Error	t-value	p-value	
Constant	4.557	4.337	1.051	0.294	
Cost reduction (X ₁)	-1.695	0.930	-1.823	0.069	*
Good relationship within the household (X ₂)	3.131	0.993	3.152	0.002	**
Increase revenue (X ₃)	-0.601	0.901	-0.667	0.505	
Demand from the buyers (X ₄)	-0.653	0.859	-0.760	0.488	
Buyers can pay more (X ₅)	0.709	0.796	0.891	0.374	
Organic is the new production trend (X ₆)	-1.339	0.786	-1.704	0.089	*
Health concern (X ₇)	-1.232	0.669	-1.843	0.066	*
No excessive resources compared with chemicals (X ₈)	-2.540	0.753	-3.374	0.001	**
Way of sustainable production mode (X ₉)	5.416	0.918	5.898	0.000	**
Afraid of chemical danger (X ₁₀)	0.331	0.767	0.431	0.667	
Government support (X ₁₁)	0.963	0.534	1.803	0.072	*
R ² = 0.222		SEE = 6.683	F = 9.342	p-value of F = 0.000	

Note: * a significance level of 0.1

** a significance level of 0.05

5. CONCLUSION

According to the results, good relationship within the household and way of sustainable production mode had a strong significant relation to the extension of organic production area. The finding confirms a result of study conducted by Pornpratansombat et.al (2011) that the conversion of organic agriculture was from the attitude towards conventional farming problem. A study by FAO (2002) and Setboonsarng (2006) indicated that organic production can alleviate migrant labor problems in rural areas, implying better relationship within the household. In addition, government support had a significant relation. The finding confirms a result of a study conducted by Tiraieyari et. al. (2014) that government support in terms of direct incentives and financial support are recommended.

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