Farmers' Attitude towards Organic Vegetables Cultivation in Northeast Thailand

ทัศนคติของเกษตรกรต่อการปลูกผักที่กำลังเข้าสู่การปลูกผักอินทรีย์ในประเทศไทย

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ABSTRACT

The main objectives of the study were to determine the attitude of the farmers towards the organic vegetables production and to reveal the relationships of some selected characteristics of the farmers with their attitude. Data were collected by semi structured interview schedule from 51 randomly selected households. Data revealed that highest proportion (55%) of organic vegetable growers had moderately favorable and 23.6% had unfavorable attitude toward organic vegetables cultivation while 21.4% had favorable attitude. Age, education, family size, farming experience, training receive and knowledge of the vegetables grower had significant positive relationship with their attitude on towards organic vegetables production.

บทคัดย่อ

วัตถุประสงค์หลักในการศึกษานี้คือ เพื่อระบุทัศนคติของเกษตรกรที่กำลังเข้าสู่การปลูกผักอินทรีย์ และเพื่อหาความสัมพันธ์ของลักษณะบางประการของเกษตรกรกับทัศนคติที่มีต่อการเข้าสู่ปลูกผักอินทรีย์รวบรวมข้อมูลโดยการสัมภาษณ์แบบกึ่งมีโครงสร้างจากจำนวนครัวเรือนที่สุ่มเลือก 51 ครัวเรือน ข้อมูลแสดงให้เห็นว่า เกษตรกรผู้ปลูกผักอินทรีย์ส่วนใหญ่ (ร้อยละ 55) มีความพึงพอใจอยู่ในระดับปานกลาง และเกษตรกรร้อยละ 23.6 ไม่พึงพอใจต่อการปลูกผักอินทรีย์ ในขณะที่เกษตรกรร้อยละ 21.4 มีความรู้ ความพึงพอใจ อายุ การศึกษา จำนวนสมาชิกในครอบครัว ประสบการณ์ในการทำการเกษตร การได้รับการฝึกอบรมของเกษตรกร และความรู้ของเกษตรกร มีความสัมพันธ์โดยตรงกับทัศนคติในการปลูกผักที่กำลังเข้าสู่ผักอินทรีย์

Key Words: Organic vegetables, Knowledge, Production system

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Introduction

Organic agriculture is the most dynamic and rapidly growing sector of the global food industry (Ellis *et al*., 2006). Yield of organic agriculture are not less as compare to conventional agriculture. Badgley *et al.* (2006) showed organic food can fulfill the demand of food and sustain the environment. Thailand is predominantly an agriculture-based country. With a favorable climate and well developed agricultural processing facilities, Thailand is among the top ten agricultural exporters in the world. In Thailand, production of organic crops is undertaken mainly by smallholders, farmers groups or by large agro-enterprises using organized groups of contract farmers. An estimation by Ratanawaraha *et al.,* (2009) indicates that certified organic production increased from 2,147 ha in 2001 to 22,550 ha in 2006, equivalent to 0.11% of the country's total agricultural area (21 million ha), representing an increase of over 950% over the 2001 hectares. Northeast Thailand [NET], also known as Isarn, is located in a sub tropical area with a total population of about 21 million and a territory of 160,000 km^2, comprising approximately one third of the Kingdom of Thailand in terms of the population and the territory. Majority of the population in NET are resource poor farmers with an average land size of 15 rai (2.4 hectare), Mostly growing rice under rain-fed condition for subsistence. The Northeast region has the biggest area and population, but a moderately low supply of vegetables. The Northeast plateau drains with a numbers of smaller rivers into Mekong River on the Laos border. The area has features of typical rain-fed agriculture with inadequate water during the hot and dry seasons. Vegetables are grown as crops after rice, with limited use of modern technology. Important vegetables for fresh markets include chili, multiple onion, shallot and long cucumber. Accessibility of vegetables in low income groups is limited to gardening and gathering indigenous vegetables in brick wood and forests. The production of organic vegetable is increasing in the Northeast Thailand day by day but in many cases some farmers are not satisfied about their production and concept of organic vegetables production are also not clear some of them.). Many "*alternative*" approaches have been developed to achieve a more sustainable agriculture. Well known approaches are: integrated pest management, integrated crop management, low input agriculture, permaculture, biodynamic farming, precision agriculture and organic farming (Gold, 1994). From among these approaches, sustainability can be considered in relation to organic farming as a sector growing rapidly in many countries (Rigby and Caceres, 2001). Organic vegetables are promising now due to low external input cost for the cultivation such as low fertilizer, low pesticide by increasing and efficiently using farm size resources (Ramesh *et al.* 2005). Attitudes are frequently described in terms of personal consistency, as a "latent concept" that is individual-dependent (Vogel, 1994). According to Hyytiä and Kola (2005), "Ajzen defines attitudes as latent and hypothetical characteristics that can only be inferred from external, observable cues". Also, Banyte et al. (2007) note that attitude is how for or against, positively or negatively, favorably or unfavorably a person regards a particular object. In these case attitude of farmers' are important because more favorable attitude of a person play a vital role to do a special practice like organic vegetables cultivation. Review of different studies (Wheeler, 2008; Gotschi *et al.,* 2007; Stobbelaar *et al.,* 2006; Vogel, 1994) has shown that

attitudes are affected by a set of antecedent variables, including knowledge, socio and structural factors such as community pressures, family concerns, ethical principles and values. They may change over time, as knowledge and other antecedent variables change.

So it is urgent to know that the attitude of the farmers for organic vegetables cultivation and really what are the variables or characteristics relating attitude regarding organic vegetables cultivation. Therefore, it is important at present situation and also need for future time because of increasing population and climate change as well. In view of this context, the study was conducted with the following objectives; i) to determine the attitude of the farmer's towards organic vegetables cultivation; ii) to determine and describe some selected characteristics of the organic vegetables cultivation; iii) to explore the relationships between each of the selected characteristics of organic vegetables growers and their attitude on production system.

At two villages in Samsung District, Khon Kaen province, Northeast Thailand more than 100 farmers are cultivating pesticide free organic vegetables but a significant number of farmers produce low amount of vegetables as compare to others who do cultivate more amount. But it is interesting that all the farmers use to cultivate similar size of plot area, similar initial subsidies and the environment is same. So, it is interesting what factors that affect the yield of vegetables. This is why the author is very much interested to know the situation of the context and to identify some important factors for the production practice of organic agriculture. So, in the view of forgoing discussion, the investigator undertook a piece of study entitled, "Farmers Knowledge, Attitude and Skill towards Organic Vegetables Cultivation in Ban Sam Hong and Ban Swang Village, Hoi Toei Sub district, Samsung District, Khon Kaen Province, Northeast Thailand"

Materials and Methods

Study Area, Population and Sampling

The study was conducted in two villages namely, Ban Sam Hong and Ban Swang in Samsung district, Khon Kaen province, Northeast Thailand. Some farmers of this area started organic vegetables cultivation from 2005. Now the total number of organic vegetables grower were 115. 40% purposively vegetables growers were considered as the population for this study. Simple random sample procedure was followed in selecting sample. Population was selected as the sample by randomly selected method. The proportions (%), mean, standard deviation (SD), correlation were statistical method of analysis. SPSS software for windows version 17 was used for data analysis.

Variables of the study and their Measurement

There some selected characteristics of the vegetables growers were considered as the independent variables of the study included age, education, farm size, family size, annual income, area crop grown, farming experience, input cost, training receive and communication. The attitude on organic vegetables cultivation was considered as the dependent variable. The measurement of the independent variables was done following the methodology developed by Sobhan (1975), Panday (1989), Hossain and Mahabub (1986), Hossain and Crouch (1992). By computing a measurement of attitude score; the attitude of the farmers 5 points rating scale with 9 statements (3 negative and 6 positive) was used. Attitude index (PI) was computed by using following formula.

Attitude index (PI) = $S_A \times 4 + A \times 3 + U \times 2 + D_A \times 1 + S_{DA} \times 0$

Where,

SA= Total number of farmers expressing their attitude "Strongly agree" for one statement

A= Total number of farmers expressing their attitude "agree" for one statement

U= Total number of farmers expressing their attitude "undeceives" for one statement

DA= Total number of farmers expressing their attitude "dis-agree" for one statement

SDA= Total number of farmers expressing their attitude "Strongly dis-agree" for one statement

Thus, attitude score of a respondent could be 0 to 45

Results and Discussion

Farmers Attitude on Organic Vegetables Cultivation

Bernad (1965) defined attitude as predisposition to act in a certain way. It is a state of readiness that influences a person to act in a given manner. According to Drever (1968) an attitude is more or less stable set or disposition of opinion, interest or purpose, evolving expectancy of certain kind of experience and readiness with appropriate kind of response. Data from table 1 imply that more than fifty (55%) of the respondents held moderately favorable attitude towards organic vegetables cultivation. It indicates that respondents' attitude were not sufficiently favorable for cultivating organic vegetables. The study was found in line with the study of Sayeed (2002) and Islam (2000). The respondents also had 23.52% unfavorable and 21.57 favorable attitude. The favorable attitude might have been formed due to modern communication facilities, government and non-government organizations' propaganda of usefulness of vegetables in keeping sound health as well as gain economic benefit from vegetables cultivation. Therefore, it is assumed that respondents' attitude towards vegetables cultivation can be fruitfully used in all vegetable cultivation activities as well as agricultural development.

Table 1 Overall categories of the farmers based on their Attitude

Categories	Farmers			
	Number	Percent	Mean	SD
Unfavorable (0-15)	12	23.6		
Moderately favorable (16-30)	28	55	8.2	3.12
Favorable (>30)	11	21.4		
Total	51	100		

Probable range: 0 to 45 *SD = Standard Deviation

Data from table 1 imply only 21.4% of the respondents held favorable attitude towards organic vegetables cultivation. It indicated that respondents attitude were not sufficiently favorable for cultivating vegetables.

Table 2 indicated that "Chemical pesticide is most suitable for pest control" got the 1st rank. From the first rank this may be happened due to difficult to control pest by organic pesticide or chemical pesticide gives result rapidly to the field. "Chemical pesticide is more suitable to control weed" stood second in the order. This is because farmers may believe that chemical pesticide can control weed rapidly. Organic pesticide may be not more effective like inorganic pesticide so farmers believe inorganic pesticides are good for weed control. "Organic vegetables production is very difficult to implement due to difficulties in obtaining organic matter" stood third in rank order. Farmers may strongly

believe that organic matter is the problem for organic vegetables production. And it is very difficult to manage enough organic materials for vegetables production. "Organic farming is very difficult to implement" stood 4th score due lack or organic materials, lack of pesticide and other management. "Organic vegetables production is only troublesome for farmers" stood 5th score. This is because farmers may believe they have a lot of troublesome for organic vegetables production due to soil management, making pesticide and even quality control. "Organic vegetable only be benefiting only for consumer not to the producer" stood 6th which is because farmers believe they have pay more attention but they do not get satisfactory profit from it. "Organic farming decreases production cost by decreasing input cost" stood 7th score due the low investment of money for organic vegetable production. "Organic vegetables do increase fertility or organic matter in soil" got 8th score due some small farmers believe organic matter enhances organic matter in the soil. "Organic vegetables can increase the income of the organic vegetables growers" stood the 9th or last score. This is because most of the farmers believe that organic vegetables cannot increase the income due lack of good benefit from market and production cost is almost higher as compare to inorganic vegetables.

Table 2 Statement wise attitude score of the farmers regarding organic vegetables cultivation

Statement	Obtained score	Rank
Chemical pesticides are most suitable for pest control (+)	198	1
Chemical pesticides are most suitable to control weed (+)	193	2
OVP is very difficult to implement due to difficulties in obtaining in organic matter (+)	191	3
Organic farming is very difficult to implement (-)	182	4
OVP is the only troublesome for the farmers because it needs more attention (-)	178	5
Organic vegetable only be benefiting for consumer not to producer (-)	176	6
Organic farming will decrease the production cost by reducing the input purchases (+)	171	7
OVP is effective in increasing the texture and fertility of soil (+)	170	8

OVP can increase the income of the producers (+)	119	9

Remarks: OVP: Organic Vegetables Production

Table 3 shows nine Likert's rating scale statements to measure the attitude of the respondents towards organic vegetables production. The statements consist of six positive statements and three negative statements. Majority of the respondents had positive attitude (i.e. agreed and strongly agreed) towards organic farming (60% of the respondents) that organic farming will decrease production cost by reducing input purchases. It is interesting that majority of the organic farmers are undecided about application of chemical pesticide to control pest. Still some farmers do believe that chemical pesticide are good for controlling insect pest in organic farm and about 20% farmers believe it could be suitable at critical stage in pest or disease attack. The similar phenomenon was found in case of weed control. Some farmers believe that weed controlling pesticide may be applied in controlling weed. But it is strongly prohibited that chemical pesticide must not use at any stage or any situation in organic farm (FAO, 1998). Around 50% respondents believe (strongly agree and agree) organic vegetables are benefited for consumer not to the producer. The 30% farmers (strongly agree) and 40% farmers (agree) about on the troublesome of the farmer's attention to cultivate organic vegetables. Obtaining organic fertilizer which is essential for organic vegetables production; 50 % respondents are undecided and rest on are mixed type. Most of the respondents do not believe on organic farming are difficult to implement. Only 10% respondents are strongly believe that organic farming is difficult to maintain where 50% respondents are totally undecided. Only 30% respondents believe that organic vegetable production increase soil fertility and texture that may happen due to lack of knowledge on organic vegetables production. However 60% farmers believe that organic vegetables production increases the income of the farmers. So the farmer's attitude is not satisfactory in many cases for organic vegetables cultivation and it might be due to low level of knowledge. And review of different studies (Wheeler, 2008; Sanderson, 2004; Gotschi *et al.,* 2007; Stobbelaar, 2006) has shown the attitudes are affected by a set of variables like knowledge socio structural factors such as community pressure, family concern, ethical principles and values. Aker and Mahamud (2005) also found farmers' knowledge is required for organic farming practice. It is no doubt that farmers attitude depend on farmers knowledge. From the above discussion on attitude on organic vegetables production, we can conclude that attitude of the farmers are not satisfactory in many cases and it is mixed type attitude.

Table 3 Attitude towards organic vegetables cultivation

Statements	Extent of agreement (N=51)				
	Strongly agree (%)	Agree (%)	Undecided (%)	Disagree (%)	Strongly disagree (%)
Organic farming will decrease the production cost by reducing the input purchases (+)	60.0	40.0	0.0	0.0	0.0
Chemical pesticides are most suitable for pest control(+)	10.0	20.0	50.0	10.0	10.0
Chemical pesticides are most suitable to control weed(+)	20.0	50.0	30.0	0.0	0.0
Organic vegetable only be benefiting for consumer not to the producer(-)	50.0	50.0	0.0	0.0	0.0
OVP is the only troublesome for the farmers because it needs more attention(-)	30.0	40.0	10.0	10.0	10.0
OVP is very difficult to implement due to difficulties in obtaining in organic matter(+)	10.0	20.0	50.0	20.0	0.0
Organic farming is very difficult to implement (-)	10.0	30.0	50.0	10.0	0.0
OVP is effective in increasing the texture and fertility of soil(+)	30.0	40.0	20.0	10.0	0.0
OVP can increase the income of the producers(+)	60.0	40.0	0.0	0.0	0.0

Relationships between the dependent and independent variables

Table 4 indicated that farm size had a significant negative relationship with their attitude. Haque (1982) also found similar findings. Farmers of bigger farm size remain busy with their farm and get less scope to visit various places of importance outside their own social system as well come less in contact with various information media and they also less interact with various personnel. Area of crop grown also had negatively significant relationship with their attitude. If farmers do cultivate others cash crop like sugarcane, cassava, rubber etc. then farmers gets less time to pay attention to their organic vegetables farm. In case of input materials “inputs cost” was negatively significant with the attitude of farmers and this may be the causes for initial investment for organic vegetables production is very high. Most of the farmers may believe that organic vegetables need more organic matter even more initial investment for getting higher income. Age of the

farmers had positively significant related with organic vegetables production. Most of the farmers in the study area were aged i.e., more than 50 years old. Old farmers do cultivate organic vegetables due inability to do work in industry in the city or other hard work. The young people are not interested to do agricultural work. The education had positively significant relationship with farmers' attitude for organic vegetables production this is because farmers' knowledge enhances by getting more education and attitude can be increased. The relationship between family size and attitude for organic vegetables cultivation was also positively significant. Afique (2006) observed similar relationship in his study. In large, diversified family members have opportunities to discuss about any important issue with one another. And large family can serves more labor to organic farm as well. Training receives and farming experience had also significant positive realtionsship with the attitude of farmers. Kabir (2002) also found similar result. Training increases skill, knowledge and changes attitude. Better attitude can be developed in an individual due to his or her participation in training and training receive, input cost, gender and age are one of the important demographic factors that can contribute to the knowledge, attitude and practices of farmers (Molder *et al.*, 1991; Burton *et al.*, 1999, Ghorbani, M., Hamraz S. 2009). Farmer's knowledge on organic vegetables production had significant relationship with their attitude. Sayeed (2002) also found same findings. Knowledge about any subject matter increases one's thinking capability. So farmers with high knowledge on organic vegetables cultivation might have better attitude for vegetables cultivation organically.

Table 4 Co-efficient of correlation (r) between selected characteristics of organic vegetables growers and their attitude on organic vegetables cultivation (n=51)

Dependent variable	Independent variables	Computed values
Farmers attitude	Age	0.28**
	Education	0.357*
	Family size	- 0.053**
	Farm size	-0.340*
	Annual family income	0.277NS
	Area crop grown	-0.064*
	Input cost	-0.101**
	Farming experience	0.265**
	Training receive	0.27**
	Knowledge	0.186**

** indicates 0.01 level of significant

*indicates 0.05 level of significant

NS indicates non significant

Conclusion

Attitude is the important factor for organic vegetables cultivation but fifty (55%) of the respondents held moderately favorable attitude towards organic vegetables cultivation while the respondents 23.6% unfavorable and 21.4% favorable attitude. The attitude on organic vegetables especially favorable attitude is required to understand the system of organic vegetable or for good practice which is totally unsatisfactory of this area. Their attitude was particularly lower in such aspect of organic vegetables cultivation as soil management, irrigation system, intercultural operation, diseases and pests management, organic pesticide making transplanting time, harvesting

etc. Thus there is ample scope to increase their attitude of organic vegetables cultivation by increasing knowledge through training, extension communication and education as well. The attitude of the respondent farmers on organic vegetables production concepts especially pertaining to the use of chemical insecticides, herbicides and fertilizers is still need to be improved. It is essential to make farmers aware of the benefits of organic vegetables production. Therefore, there is a need for greater awareness especially among producers or farmers through extension programs to become conscious of sustainable organic vegetables production with use of those agricultural methods which do not create hazards for the environment or jeopardize the health of soil, plants, animals, humans and ecosystems.

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