

KNOWLEDGE, ATTITUDE AND PRACTICES OF FARMERS TOWARDS ORGANIC FARMING

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ABSTRACT

Organic farming is gaining popularity all over the world as it can diversify agricultural production system toward attaining improved productivity, farm income as well as food safety. The rise of organic farming was driven partly by consumers' concern with food quality and safety, as well as the protection of the environment. Organic Farming produces safe and nutritious food as it helps prevent soil pollution by stopping risky chemical reactions in the soil and avoiding produce contamination, as well as soil erosion, by wind and rain. One of the important parties that can enable the country to produce more organic products through organic farming is the growers or farmers. The final decision of farmers to use a new practice like organic farming system is usually the result of their knowledge of the practices as well as their perception. Therefore, the main purpose of this preliminary study was to investigate the knowledge, perception or attitude, and practices of vegetable growers towards organic farming. A survey method through face-to-face interview by using structured questionnaire was used to collect data from a total of 31 vegetable growers in Kundasang, Sabah which was selected by using simple random sampling method. The findings of the study show that the knowledge of the respondents on organic farming especially pertaining to the use of chemical insecticides, herbicides and fertilizers is still need to be improved, their attitude is also still negative, and they are still dependent on conventional practices (i.e. chemical) especially to control pests and diseases.

Key words: Organic farming, knowledge, attitude, practices, growers

INTRODUCTION

Organic farming is gaining popularity in Malaysia today as it can diversify agricultural production system toward attaining improved productivity, farm income, and food safety is seen as a sustainable alternative to chemical-based agricultural systems (Stockdale et al., 2001; Biao et al., 2003). IFOAM (2000) has defined organic agriculture as 'a process that develops a viable and sustainable agro ecosystem'. Interest in organically produced food is increasing throughout the world in response to concerns about intensive agricultural practices and their potential effect on human health as well as on the environment. The growth in consumer demand for organically produced food and the standardization of organic farming methods have created a distinguished marketing opportunity for agricultural producers.

Organic farming systems differ from conventional systems in several aspects such as no artificial pesticides or fertilizers are used on organic farms, organic farms

generally have a wider crop rotation scheme, and also have larger areas of non-crop habitats (Seyed et al., 2010). By not using soluble chemical fertilizers and limiting the use of natural biocides in organic farming, thus that means that it is largely dependent on biological processes for the supply of nutrients and for protection of crops from pests and disease (Gosling et al., 2006). Organic farming produces safe and nutritious food as it helps prevent soil pollution by stopping risky chemical reactions in the soil and avoiding produce contamination, as well as soil erosion, by wind and rain. Hadriman (2004) in his study has found that the nutritional value was an important factor that influences consumers' preferences in purchasing chemical free vegetable, followed by desire, freshness, health effect and taste.

Based on the list of certificate holder SOM (*Skim Organik Malaysia* or Malaysian Organic Scheme) published by Malaysia Agriculture Department in 2010 through its official website

(http://www.doa.gov.my/web/guest/senarai_pemegang_sijil), there is no farm especially vegetable farm in Sabah listed in the list. This shows that organic farming is still at early stage in Sabah and need to be introduced to local farmers aggressively. Many conventional farmers consider converting to organic farming due to the rapidly growing market for organic products and the prospect of higher prices. However, they are also aware that organic farming may entail some constraints and possibly higher costs, and are therefore unsure whether they will be economically better off in the end if they convert. The development of organic farming is a very complex and it involves many different actors, including farmers, advisors, processors, traders, retailers, researchers and policy makers. Therefore, one of the main important parties that can enable the country to produce more organic products through organic farming is the growers or farmers. The final decision of farmers to use a new practice like organic farming system is usually the result of their knowledge of the practices as well as their perception.

OBJECTIVE

The purpose of this preliminary study was to investigate the level of knowledge, attitude, and also practices of vegetable growers towards organic farming.

METHODOLOGY

A survey method through face-to-face interview by using structured questionnaire was used to collect data from a total of 31 vegetable growers in Kundasang, Sabah, Malaysia. Kundasang is a sub-district within Ranau district. Ranau is the largest producer of highland vegetables in the state of Sabah (Jinius *et al.*, 2001). The respondents were selected by using stratified random sampling method. The

knowledge towards organic farming was investigated through simple-dichotomy statements (i.e. True/ False). The attitude was measured by using Likert's rating scale statements (i.e. Not sure or do not know, strongly disagree, disagree, agree, and strongly agree), while the practices was measured through frequency-determination statements (i.e. Never, once, and more than once).

RESULTS & DISCUSSION

Table 1: Demographic Information

		Count	%
Gender	Male	17	54.8
	Female	14	45.2
Age group	< 41 years old	15	48.4
	> 40 years old	16	51.6

Table 1 shows the demographic information of the respondents by gender and age group. 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 & Hamraz, 2009; Sarker *et al.*, 2010; Seyed *et al.*, 2010). By taking into account these two demographic factors in sampling the respondents, the response bias could be reduced and the findings can be generalized.

Table 2: Knowledge

Knowledge	Count	%
Rotate crops to control weed, pest and also to improve soil fertility	28	90.3
Use kitchen wastes, plant wastes and animal wastes to fertile soil and plants	27	87.1
Do pruning to reduce diseases that attack plants	25	80.6
Do composting to improve soil fertility and water conservation	24	77.4
Limit the use of synthetic fertilizers to fertilize plants	23	74.2
Do not control weed manually like hand weeding because it will only waste time	23	74.2
Limit the use of chemical pesticides to control pests	21	67.7
Do green manuring or plant cover crop to reduce soil erosion and increase soil fertility	21	67.7
Use trap methods to control pests and diseases	20	64.5
Choose resistant plant varieties to reduce damage to plants	19	61.3
Do not practice intercropping / mixed cropping system because it can reduce soil fertility and water conservation	19	61.3
Implement monocropping system for the full year to decrease diseases	14	45.2
Use chemical insecticides to control pests and diseases	14	45.2
Do mulching to control weed	14	45.2
Use chemical fertilizers to increase plant growth	12	38.7
Use chemical herbicides to control weed	10	32.3
Use biological control agents to control pests	2	6.5

Table 2 shows the number of respondents who answered the 17 'true/ false' statements correctly. These 17 'true/ false' statements were asked to the respondents and the respondents have to give their responses to each of these statements whether the statement is 'true' or 'false' in relation to the organic farming. Majority of the respondents know that rotating crops, using kitchen, plant and animal wastes, pruning, composting, limiting the use of synthetic/ chemical fertilizers, manually controlling weed, and green manuring as part of organic farming practices. But majority of the respondents did not know that using biological control agents to control pests, mulching, intercropping/ mixed cropping are also considered as part of organic farming practices. They also misunderstood when they responded that chemical herbicides, chemical fertilizers, and chemical insecticides are allowed in organic farming. This shows that the

respondent farmers still not knowledgeable enough to understand the concept and the practices of organic farming. However, 11 out of 17 statements were answered correctly by more than half of the respondents so that it can be concluded that the respondents know the general concept of organic farming.

Table 3: Attitude

Statement	Not sure/ do not know		Strongly disagree		Disagree		Agree		Strongly agree	
	Count	%	Count	%	Count	%	Count	%	Count	%
Organic farming will decrease the production cost by reducing the input purchases	0	0.0	1	4.0	1	4.0	22	88.0	1	4.0
Chemical pesticides are more suitable to control pests	0	0.0	0	0.0	11	36.7	15	50.0	4	13.3
Chemical herbicides are more suitable to control weed	0	0.0	0	0.0	11	36.7	15	50.0	4	13.3
Organic farming will only be benefiting the consumers not the producers	0	0.0	0	0.0	13	46.4	14	50.0	1	3.6
Organic farming will only troublesome the farmers because it needs more attention	0	0.0	8	29.6	3	11.1	11	40.7	5	18.5
Organic farming is very difficult to implement due to difficulties in obtaining organic matters	0	0.0	2	7.7	9	34.6	11	42.3	4	15.4
Organic farming is very difficult to implement	0	0.0	0	0.0	13	48.1	10	37.0	4	14.8
Organic farming is effective in increasing the texture and fertility of soil	14	45.2	1	3.2	2	6.5	5	16.1	9	29.0
Organic farming can increase the income of farmers	13	41.9	1	3.2	6	19.4	1	3.2	10	32.3

Table 3 shows nine Likert's rating scale statements to measure the attitude of the respondents towards organic farming. The statements consist of three positive statements and six negative statements. Majority of the respondents have positive attitude (i.e. agreed and strongly agreed) towards organic farming (23 or 92% of the respondents) that organic farming will decrease production cost by reducing input purchases. Majority of them were not sure or did not know that organic farming is effective in increasing the texture and fertility of soil (14 or 45.2% of the respondents), and also effective in

increasing the income of farmers (13 or 41.9% of the respondents). Besides, most of the respondents have mixed attitude towards organic farming whereby majority of them agreed that chemical pesticides and chemical herbicides which are not allowed in organic farming are more

suitable to control pests and weed. They still believe that chemical treatments are the effective inputs in controlling pests and weed in their farms. Majority of the respondents also agreed that organic farming will only be benefiting the consumers not the producers, will only

troublesome the farmers, and also it is very difficult to implement. More than half of the respondents agreed and also strongly agreed to the all six negative statements. This shows that the respondent farmers still have negative attitude or perception on organic farming system. They were also not sure or did not know whether organic

farming system can benefit their farms by increasing the texture and fertility of soil and increase their income.

Table 4: Practices

Practices (the last 12 months)	Never		Only once		More than once	
	Count	%	Count	%	Count	%
Crop rotation	1	3.2	14	45.2	16	51.6
Manual weeding or hand weed	1	3.2	2	6.5	28	90.3
Intercropping / mixed cropping	5	16.1	12	38.7	14	45.2
Using animal manure	8	25.8	1	3.2	22	71.0
Using plant waste	8	25.8	13	41.9	10	32.3
Using organic fertilizer	11	35.5	2	6.5	18	58.1
Mulching	12	38.7	14	45.2	5	16.1
Green manuring or planting cover crop	12	38.7	13	41.9	6	19.4
Using kitchen waste	15	48.4	12	38.7	4	12.9
Using trap method to control pests	28	90.3	2	6.5	1	3.2
Using insects predators to control pests	31	100.0	0	0.0	0	0.0

Table 4 shows the frequency of the respondents practice the 11 practices listed in the questionnaire of the study. Majority of the respondents stated that they have been practicing manual weeding (28 or 90.3% of the respondents), using animal manure (22 or 71.0% of the respondents), using organic fertilizer (18 or 58.1% of the respondents), and doing crop rotation (16 or 51.6% of the respondents) more than once for the last 12 months. But most of them also stated that they never been using trap method (28 or 90.3% of the respondents) and insects predators to control pests (31 or 100.0% of the respondents) for the last 12 months. The finding shows that the respondent farmers still not use or practice non-chemical methods to combat or control pests at their farms at least for the last 12 months. This might be due to the knowledge constrain of the farmers whereby the farmers do not know or never been informed about the alternative methods or environmentally

friendly methods that can be used to control pests.

CONCLUSION & RECOMMENDATION

The knowledge of the respondent farmers on organic farming concepts especially pertaining to the use of chemical insecticides, herbicides and fertilizers is still need to be improved. Besides, their attitude towards organic farming system is also still negative. In term of practices, they are still dependent on conventional practices (i.e. chemical) especially to control pests and diseases. However, they did use more organic matters (e.g. animal manure, plant manure, and kitchen waste) to fertile their plants at least for the last 12 months ago. It is essential to make farmers aware of the benefits of organic farming. Therefore, there is a need for greater awareness especially among producers or farmers through extension programs and also training and promotional activities to

become conscious of sustainable organic farming 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. The government also has to play important role to spur growth of the organic industry especially for vegetable industry through policy development and program support. Research and development (R & D) and marketing are also very important issues or aspects to be look into in order to increase the production of organic products through organic farming practices.

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