J. Basic. Appl. Sci. Res., 2(9)9205-9210, 2012

ISSN 2090-4304
Journal of Basic and Applied Scientific Research
www.textroad.com

Malaysian Contract Farmers' Attitude towards Sustainable Agriculture

Bahaman Abu Samah[1], Jeffrey Lawrence D'Silva[2], Hayrol Azril Mohamed Shaffril[3], Norsida Man[4], Azmariana Azman[5]

[1,2,3,5] Institute for Social Science Studies, Universiti Putra Malaysia
[4] Faculty of Agriculture, Universiti Putra Malaysia

ABSTRACT

This study attempts to discover the attitude of contract farmers towards sustainable agriculture. A total of 326 contract farmers from four selected states in Malaysia were randomly selected as the respondents for this study. The findings reveal that the contract farmers surveyed have a favourable attitude towards contract farming. Inferential statistics unveiled that two demographic factors, namely zone and race, show significant differences in terms of attitude towards sustainable agriculture, while age was found to be negatively correlated with it. It is recommended that more courses and seminars should be conducted to further promote favourable attitudes towards sustainable development among contract farmers, and that access to financial support and knowledge of sustainable agriculture should be increased. In addition, to add our understanding on farmers' attitudes towards sustainable agriculture, more research should be conducted in this area.

KEYWORDS: Contract farmers, sustainable agriculture, favourable attitude, farmers' development agriculture development.

INTRODUCTION

Like many industries in the world, there is great competition in the agricultural sector. Demand for agricultural products, particularly those relating to food production, is high, and in order to meet the demand various, techniques, technologies and chemicals have been introduced to increase productivity. Doubtlessly, such innovations have helped towards meeting this demand; however, they may also pose certain threats to our environment.

In Malaysia, within the Ninth Malaysian Plan (9MP), agriculture has been placed as the third-highest income generator for the country. The government has undertaken various strategies and measures to further increase food production. The strategies include the opening of new agricultural land, and introduction of modern agricultural production techniques. The impacts of such actions have raised some speculations with regards to the impacts this rapid agricultural productivity has on the degradation of the environment. In recognition of this problem, the government has been making great efforts to encourage sustainable agriculture practices among farmers. Sustainable agriculture refers to environmentally friendly farming methods which are beneficial to consumers and animals and, more importantly, do not harm the environment. Sustainable agriculture, according to Gold (2009) includes:

Activities that capable of maintaining its productivity and usefulness to society indefinitely. Such systems must be resource-conserving, socially supportive, commercially competitive, and environmentally sound.

The success of sustainable agriculture should not be the responsibility of the government alone; it should be equally placed in the hands of the direct and main beneficiaries of agriculture – the farmers. Doubtlessly, the success of sustainable agriculture relies in part on farmers' attitudes towards such practices (Suryandari & Buang, 2010; Fakoya et al., 2007; Rahman et al., 1999; Palacios, 2005). To encourage their favourable attitudes, Palacios (2005) has illustrated the importance of creating agricultural policies that correspond with farmers' needs and convictions. Although a number of local studies have considered farmers attitudes towards sustainable agriculture, the main gap between this study and previous ones is that the main focus of studies to date has been on general farmers, without specifically considering contract farmers. Hence, the main aim of this study is to provide a better understanding of Malaysian contract farmers' attitudes towards sustainable agriculture.

Contract farming is not a new industry in Malaysia, having been established since the early 1980s. The scheme was originally designed for poultry-based broiler farms, and was then broadened to other types of farming. Contract farming can be defined as agricultural production based on an agreement between a buyer and farmers, which establishes conditions for the production and marketing of a farm product or products. Commonly, the farmer agrees to produce their products according to the quality and quantity determined by the purchaser. In turn, the buyer commits to buy the product and, in some cases, to support production through, for example, the supply of farm inputs, land preparation and the provision of technical advice.

***Corresponding Author:** Bahaman Abu Samah, Institute for Social Science Studies, Universiti Putra Malaysia .Phone no: 603-89471870, Fax no: 603-89471856, Email: majudesa.desa@gmail.com

In 2003, a new concept known as "agriculture is business" was introduced to further boost local agricultural productivity. In line with the new concept, a number of high-impact agricultural programmes were introduced, and one of these was FAMA (Federal Agriculture Marketing Authority) Contract Farming. The main aim of this programme is to facilitate increased food production and sustain economic growth in Malaysia by: a) increasing farmers' income; b) doubling farmers' productivity through systematic production and marketing plans; c) establishing high-quality and stable agricultural products; d) responding to market demand; and, d) encouraging technology transfer.

Factors affecting attitudes towards sustainable agriculture

A number of factors have been associated with farmers' attitudes towards sustainable agriculture. Palacios (2005) and Rahman et al. (1999), for example, have identified the influence of age on attitudes towards sustainable agriculture, wherein they claim that young farmers are more likely to have favourable attitudes towards sustainable agriculture. Sadati et al. (2010) supported these findings by concluding that elderly farmers have less favourable attitudes towards sustainable agriculture, and that this is caused by their low levels of literacy and low involvement in extension courses.

Issues of gender are also related to attitudes towards sustainable agriculture. Karami and Mansoorabadi (2008) and Henderson (1996) found that female farmers have more positive attitudes towards sustainable agriculture. In addition, they emphasized that factors of education, religious beliefs and exposure to information are the main factors affecting females' positive attitudes towards sustainable agriculture. Experience in agriculture, according to Sadati et al. (2010), has nothing to do with attitude towards sustainable agriculture.

Comer et al. (1999) and Rahman and Mikuni (1999) have revealed significant associations between education achievements and attitudes towards sustainable agriculture. In their studies, farmers with fewer educational achievements are expected to have less favourable attitudes towards sustainable development. Rahman et al. (1999) have discussed the roles of education in forming better attitudes towards sustainable agriculture, and claim that education broadens mental capacities, thus assisting farmers to construct more positive attitudes.

MATERIALS AND METHOD

This study attempts to explore attitude of Malaysian contract farmers towards sustainable agriculture. To this end, a total of 326 contract farmers registered with FAMA were selected as the respondents. All of the contract farmers were from four selected states in Malaysia –namely Sabah, Pahang, Kedah and Johor. Data were collected using a specially developed questionnaire. Each question related to attitudes towards sustainable agriculture, which was measured using a set of items employing a five-point Likert-like scale, namely 1 – strongly disagree, 2 – disagree, 3 – moderately agree, 4 – agree and 5 – strongly agree. The data collection process started in April 2011 and ended in December 2011. Data collection was facilitated by assistance from FAMA officers. Statistical analyses were employed using SPSS in order to meet the research objectives.

RESULTS AND DISCUSSIONS

Table 1 displays the demographic profile of the respondents. The results of the analysis reveal that the mean score for the respondents' ages was 49.5 years. It is quite alarming to observe that only 23.6% of respondents can be considered "youths" (below 40 years[1]); the reason for such a minimal proportion of young people may be related to their negative perceptions of agriculture (Man, 2008; Gidarakou, 1997). More than two-thirds of the respondents (69.9%) are male, and a large majority of them are Malay (73.0%). Gidarakou (1997) concludes that low female involvement in agriculture maybe due to the physical demands of the work, and females' commitments to their families. In Malaysia, agriculture –particularly the contract farming scheme – fails to attract many university graduates (Abu Samah et al., 2011), and the findings of this study seem to concur with this, with only 1.5% of the respondents possessing a diploma or degree. Despite their overall low education, however, it is heartening to realize that the mean income per month was RM 1,521.93 (USD 507.31); this far exceeds the poverty level set by the government, which is RM 720 (USD 240). Slightly less than half of the respondents were comparatively new to agricultural contract farming, with 43.7% having been involved in agricultural contract farming for between one and three years.

[1] According to the Ministry of Youth and Sports Malaysia, "youth" in Malaysia can be categorized as people whose age is between 15 and 40 years old.

Table 1 Respondents' backgrounds

Factors	Frequency	Percentage	Mean
Age (years)			**49.5**
20-30	32	9.8	
31-40	45	13.8	
41-50	91	27.9	
51-60	88	27.0	
>60	70	21.5	
Gender			
Male	228	69.9	
Female	98	30.1	
Zone			
Northern	85	26.2	
East Coast	80	24.5	
Southern	81	24.8	
Sabah/Sarawak	80	24.5	
Races			
Malay	238	73.0	
Dusun	80	24.5	
Chinese	8	2.5	
Level of education			
Never been to school	59	18.1	
Primary school	140	42.9	
PMR/SRP[2]	30	9.2	
SPM/SPMV[3]	82	25.2	
Skill certificates/STPM	10	3.1	
Diploma	4	1.2	
Degree/Master's	1	0.3	
Income per month			**1,521.93**
<RM 500	129	39.6	
RM 501-RM 1,000	88	27.0	
>RM 1,001	109	33.4	
Experience as contract farmer (years) (n = 324)			**8.03**
1-3	142	43.7	
4-6	63	19.4	
7-10	47	14.5	
11-15	22	6.8	
>16	51	15.7	

A total of 14 statements constituted the cumulative mean score with respect to attitude towards sustainable agriculture. The resulting cumulative mean score was then grouped into three categories, namely low (1.00–2.33), moderate (2.34–3.67) and high (3.68–5.00). The results of the analysis unveiled that almost all (95.1%) of the respondents had either a medium or high attitude towards sustainable agriculture. This reflects their awareness of the importance of sustainable agriculture (Table 2).

Table 2 Overall level of attitude towards sustainable agriculture

Level	Frequency	Percentage	Mean	S.D
			3.74	**.672**
Low (1.00-2.33)	16	4.9		
Moderate (2.34-3.67)	119	36.5		
High (3.68-5.00)	**191**	**58.6**		

For the purpose of simplicity, only the mean score of each statement is considered, without revealing a specific percentage for the five response options. Table 3 contains the specific statements used to measure attitude towards sustainable agriculture. Out of the 14 statements, the statements "soil and water are the sources of all life and should therefore be strictly conserved" and "I should be farming the land according to its size and not the extent of my ability" were given a ranking of 1 and 2, respectively. Analysis revealed that the majority

[2] PMR refers to Malaysia's Lower Education Certificate
[3] SPM/SPMV refers to Malaysia Higher/Vocational Education Certificate

of respondents do not use weeds to deter crop pests and weed wildlife (M = 2.76). These results are in line with a study conducted by Sadati (2010), who claimed that farmers have a great awareness of the need to preserve the land and the soil, as they rely so much on both sources in their agricultural activities. In addition, farmers realize the importance of minimizing the utilization of chemical contents, as such chemicals will harm their environment. It should be noted that the respondents possess less favourable attitudes towards weed usage to deter crop pests and weed wildlife, probably due to a lack of knowledge on the benefits of weeds.

Table 3 Statements used to measure attitudes towards sustainable agriculture

Statement	Mean	S.D
Soil and water are the sources of all life and should therefore be strictly conserved.	4.48	0.858
I should be farming the land according to its size and not the extent of my ability.	4.37	0.666
I use pesticides according to the directions given.	4.23	0.947
If I misuse agriculture chemicals, they can pollute the environment and become harmful to humans.	4.21	1.03
I use organic fertilizer to increase production and soil fertility.	3.99	1.17
Crop rotation and diversity can reduce farm pests.	3.82	1.07
I use more organic fertilizer than chemical fertilizer.	3.68	1.24
My crops risk will decrease if I use crop rotation.	3.67	1.19
I apply crop rotation to increase soil fertility.	3.55	1.30
I use crop rotation and diversification to deter pests.	3.39	1.26
I cultivate legumes/limes to increase soil fertility.	3.44	1.25
I plant trees to avoid soil erosion and increase soil nutrients.	3.44	1.26
I use crop rotation because it can reduce soil erosion.	3.28	1.29
I use weeds to deter crop pests and weed wildlife.	2.76	1.32

In order to meet one of the objectives of this paper, which is to determine any differences between the selected independent variables in terms of attitudes towards sustainable agriculture, an independent t-test was employed. The analysis resulted in M = 3.71, SD = 0.713 for males and M = 3.80, SD = 0.564 for females, and there was no significant difference in terms of attitude towards sustainable agriculture between males and females (t (326) = 1.105, p = 0.270). Such results denote the possibility that both male and female contract farmers have an equal attitude towards sustainable agriculture. Thus, such results are opposed those found by Karami and Mansoorabadi (2008), who claimed that female farmers have a better attitude than males towards sustainable agriculture. An equal attitude towards sustainable agriculture may be a reflection of the government's success in promoting the importance of sustainable agriculture to farmers.

This study has also attempted to identify any difference that might occur between level of education and attitude towards sustainable agriculture. To analyze the data, the respondents' level of education was further categorized into <PMR group and >SPM/SPMV. It can be noted that there was a difference in the resulting mean score for respondents in <PMR (M = 3.75) and >SPM (M = 3.70); nonetheless, the resulting t-value was too small (t = 0.703), and the p-value was 0.482, which indicated that there was no significant difference in attitude towards sustainable agriculture between the two groups. The results of this study contradict the findings of Rahman and Mikuni (1999), who claimed that farmers with higher levels of education will be more knowledgeable, and thus will have more favourable attitudes towards sustainable agriculture.

For the purpose of analyzing any difference that might exist between races in terms of attitudes towards sustainable agriculture, the respondents' races were further categorized into two groups, namely Malay and Dusun/Chinese. Table 4 demonstrates that Malay respondents recorded M = 3.56, SD = 0.650, while Dusun/Chinese respondents recorded M = 4.20, SD = 0.492; t(326) = 8.249, p = 0.0001. Such a significant difference is unsurprising, as almost all of the Dusun respondents still practise organic farming; they still rely on indigenous knowledge, and most of them believe that in practising such a style of farming, it will help them to sustain their "friend", the environment. Furthermore, Sullivan et al. (1996) and McCann et al. (1997) found that organic farmers such as the Dusun believe that humans should live in harmony with nature, have concern for environmental problems relating to agriculture, and possess a greater awareness of and appreciation for nature in their relationship with the land.

Table 4 Comparison between selected independent variables and attitude towards sustainable agriculture, using independent t-test

Variables	n	Mean	SD	t	p
Gender				1.105	.270
Male	228	3.71	0.713		
Female	98	3.80	0.564		
Level of education					
≤PMR	229	3.75	0.688	.703	.482
≥SPM	97	3.70	0.633		
Race				8.249	.0001
Malay	238	3.56	0.650		
Dusun/Chinese	88	4.20	0.492		

To further analyze the data, ANOVA was employed. As displayed in Table 5, there was a significant difference in attitude towards sustainable agriculture among the four zones studied [(4, 326) = 8.750, $p < 0.05$]. A post-hoc test was performed, and proved that there was a significant difference between Sabah/Sarawak contract farmers and Northern, Southern and East Coast contract farmers. The data revealed in Table 6 can be considered alongside the data in Table 5, as the Sabah/Sarawak zone was fully represented by the Dusun people.

Table 5 Comparison between selected independent variables and attitude towards sustainable agriculture using independent ANOVA

Variables	n	Mean	SD	F	P
Zone				**29.575**	**.0001**
Northern	85	3.61	0.575		
East Coast	80	3.72	0.555		
Southern	81	3.39	0.766		
Sabah/Sarawak	80	4.24	0.488		

In order to examine any relationship between age, monthly income and experience as contract farmers with attitude towards sustainable agriculture, a pearson product moment correlation was employed. Out of three independent variables, only age was identified to have a significant relationship with attitude towards sustainable development.

It is unsurprising that a negative correlation occurs between age and attitude towards sustainable agriculture, which denotes that the older the contract farmer, the less favourable attitude towards sustainable agriculture he has. Palacios (2005) stressed that older farmers are more prone to increase production to attain higher yields and maximize their income. He further added that some involvement of elderly farmers in sustainable agriculture is driven by external pressures, or because they do not fully rely on farming. This finding is supported by Rahman et al. (1999), who found that the involvement of elderly farmers in sustainable agriculture is mainly caused by pressure from the cooperative they belong to, and that they may not even be satisfied with using such sustainable practices (Table 6).

Table 6 Relationship between selected independent variables and attitude towards sustainable agriculture using pearson product moment correlations

Variables	*r*	*p*
Age	-0.258	0.0001
Income per month	-0.066	0.235
Experience as contract farmer	0.054	0.333

Recommendations

More courses and seminars should be provided to contract farmers. As stressed by Abu Hassan et al. (2010), attending courses and seminars on something can change mind-sets. In addition, such courses and seminars would raise public awareness on the importance of sustainable agriculture. The results obtained have proven that the majority of contract farmers possess favourable attitudes towards sustainable agriculture. Thus, there are chances for concerned parties to use this favourable attitudinal trend to launch action programmes presenting new techniques in agriculture for combating environmental degradation.

To further enhance their favourable attitude towards sustainable agricultural practices, access to financial support must be widened. Contract farmers must be provided with special subsidies which aid them in using sustainable agricultural practices. In addition, partnerships between public and private NGOs should be encouraged, whereby financial support for contract farmers who use sustainable agricultural practices can be provided.

Knowledge can hold the key for constructing a better attitude towards sustainable agriculture. Knowledge sharing between contract farmers, their colleagues and relevant agencies about all aspects of sustainable agricultural practices is important. Here, the effective roles of extension officers are crucial, and could determine the success of the information dissemination and sharing process. In addition, demonstrations on good sustainable agriculture practices would enhance their knowledge through observation.

More local research should be conducted to discover new ideas germane to contract farmers' attitudes towards sustainable agriculture. Research will unveil new knowledge on sustainable agriculture, and the respective parties can share their research findings and information obtained with the contract farmers.

Conclusion

In order to maintain sustainable agriculture, a positive attitude must be cultivated in farmers. This study has revealed that contract farmers in Malaysia do have a favourable attitude towards sustainable agriculture;

thus, it reflects a promising future for sustainable agriculture in the country. Contract farmers admit the importance of conserving the soil, and the need to conduct their farming activity according to the size of the land.

Some of the findings of this study have agreed with findings from previous studies. This study has revealed that factors of race, zone and age have a profound impact on attitudes towards sustainable agriculture. It is believed that Dusun contract farmers have the most favourable attitude towards sustainable agriculture, while elderly contract farmers were identified to have a less favourable attitude.

To further enhance contract farmers' favourable attitudes, it is suggested that courses and seminars be offered on the importance of sustainable agriculture for their farming activity. Moreover, contract farmers should be given adequate access to financial resources and knowledge germane to sustainable agriculture. It should be noted here that more research with regards to farmers' attitudes towards sustainable agriculture should be conducted, as this would provide more information to build an understanding of other factors regarding favourable attitudes towards sustainable agriculture.

Acknowledgement

This study is sponsored by Universiti Putra Malaysia through Research University Grant Scheme (Scheme number 3).

REFERENCES

1. Abu Hassan, M., M.S. Hassan, H.A.M. Shaffril and D'Silva, J.L. 2009. Problems and Obstacles in using Information and Communication Technology (ICT) among Malaysian Agro-Based Entrepreneurs. *European Journal of Scientific Research.*, 36 (1): 93-101.
2. Abu Samah, B., J.L. D'Silva, H.A.M. Shaffril and Uli, J, 2010. Acceptance, Attitude and Knowledge towards Agriculture Economic Activity between Rural and Urban Youth: The Case of Contract Farming. *Journal of Applied Science.*, 2010: 1-6.
3. Comer, S., E, Ekanem, S. Muhamad, S.P. Singh, and F. Tegegne,1999. Sustainable and Conventional Farmers: A Comparison of Socio-economic Characteristics, Attitude, and Beliefs. *Journal of Sustainable Agriculture., 15*(1):29-45.
4. Fakoya, E.O., M.U. Agbonlahor and Dipeolu, A.O. 2007. Attitude of Women Farmers towards Sustainable
5. Land Management Practices in South-Western Nigeria. *World Journal of Agriculture Science., 3*(4):536-542.
6. Gidarakou, I, 1997. Young Women's Attitudes towards Agriculture and Women's New Roles in the Greek Countryside: A first approach. *Journal of Rural Studies, 15*(2): 147-158.
7. Gold, M.V, 2009. Sustainable Agriculture: Information Access Tool. Retrieved on 7 May, 2012 from: http://www.nal.usda.gov/afsic/pubs/agnic/susag.shtml.
8. Henderson, H.K, 1996. Gender Issues in African Agriculture and Sustainable Development. *American Anthropologist, 98*(4): 879–881.
9. Karami, E and A. Mansoorabadi, 2008. Sustainable Agricultural Attitudes and Behaviors: A gender analysis of Iranian farmers. *Environment, Development and Sustainability, 10*(6), 883-898
10. Man, N, 2008. Youth Perception towards Agriculture and Needs on Agriculture Education. *Journal of Malaysian Youth Development, 1*(December): 99-114.
11. McCann, E., S. Sullivan, D. Erickson and R. De Young, 1997. Environmental Awareness, Economic Orientation, and Farming Practices: A comparison of organic and conventional farmers. *Environmental Management,* 21(5): 747–758. DOI: 10.1007/s002679900064.
12. Palacios, S.P.I, 2005. Farmers' Attitude towards Sustainable Agriculture in Japan. *Japanese Studies, 25*(2): 187-202.
13. Rahman, M.Z and H. Mikuni, 1999. Farmers' Attitudes towards Sustainable Agriculture Issues and Environmental Quality in a Selected Area of Bangladesh. *American Journal of Alternative Agriculture,* 14: 22-29. DOI:10.1017/S0889189300007979.
14. Rahman, M.Z., H. Mikuni and M.M. Rahman, 1999. Towards Sustainable Farming Development: The Attitude of Farmers in a Selected Area of Shimane Prefecture, Japan. *Journal of Sustainable Agriculture, 14*(4): 19-33.
15. Sadati, A.S., S.F, Hosain, A, Ali and S. Abolghasem, 2010. Farmer's Attitude on Sustainable Agriculture and its Determinants: A Case Study in Behbahan County of Iran. *Research Journal of Applied Sciences, Engineering and Technology, 2*(5): 422-427.
16. Sullivan, S., E. McCann, R. De Young and D. Erickson, 1996. Farmers' Attitudes about Farming and the Environment: A Survey of Conventional and Organic Farmers. *Journal of Agricultural and Environmental Ethics, 9* (2): 123-143, DOI: 10.1007/BF03055298.
17. Suryandari, R.Y and A. Buang, 2010. Contract Farming as a Mechanism for Agricultural Development in Malaysia: Perceptions from participants and non-participants. Paper presented at 4th Asian Rural Sociology Association (ARSA) International Conference September 2010, Legazpi City, Philippines.