



## The Sustainability Practices among Dairy Farmers: The Case of Johor

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Received: 08 February 2015,

Accepted: 06 June 2015

### Abstract

Sustainability concept in agriculture is becoming widespread throughout industries in many fields even in crop production, livestock production and etc. Sustainable agriculture is believed can give present and future good benefit to the farmers and society. However, in dairy sector in Malaysia, the sustainability concepts and practices seems not fully aware by the farmers which result in low self-sufficiency level in milk production. The self-sufficiency level in Malaysia is merely 6% and this lead to the urgency of importing more milk from other countries such as Australia, Holland and others. This study attempts to describe the descriptive thoughts on sustainability among Malaysian dairy farmers as well as describing the socio economic characteristics of the dairy farmers which will be the indicator of adoption of sustainability practices among dairy farmers. The preliminary data was collected using questionnaires through conducting face to face interviews with 50 dairy farmers from Johor. The Likert-type scale was employed to determine the practices that adopted by the dairy farmers. The gathered data was analysed using SPSS. The findings indicated that the dairy farmers had a higher understanding about the farm sustainability aspect which gives the highest mean score of 4.41. The second highest mean score is the ecological aspect which is about 4.13. The mean score for economic aspect shows the mean score about 4.00. The social aspect of sustainability revealed the lowest mean score which was about 3.46. The results indicated that the farmers favour sustainable practice is farm sustainability system. Sustainability in dairy farming sector in Malaysia can be achieved if the three elements of sustainability which is environmental, economic and social aspect were implemented and adopted in this sector.

#### Keywords:

Dairy farming, Farmers, Practices, Sustainability

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## INTRODUCTION

Dairy farming sector in Malaysia is considered as small with the level of milk sufficiency about 6% but the government aim are to increase local milk production in the short term as well as the long term and to increase self-sufficiency level. To achieve this, dairy farmers need to adopt sustainable practices in their farms. It is now accepted that economic development should be based on the concept of sustainability and also be environmental-friendly. Sustainable dairy farming involves protecting and improving the natural environment, animal welfare and conditions of the local community, while at the same time, being productive and efficient. A sustainable agriculture is one that, over the long term, enhances environmental quality and the resource base to provide for basic human food and fibre needs; is economically viable; and enhances the quality of life for farmers and society as a whole. [American Society of Agronomy, \(1989\)](#). The sustainability of the Malaysian agriculture sector has been on the national agenda for some time with the latest thrust being the [National Agro-food Policy \(2011 – 2020\)](#). The National Agro-food Policy programs were made as soon as the National Agriculture Policy ended by the year 2010. The agenda in the programs is maintained which is to encourage the development in Malaysian agriculture sector and secure the food security in Malaysia. [National Agro-food Policy \(2011 – 2020\)](#) functions to carry out previous agriculture programs such as Economic Transformation Program (ETP). Most of the dairy farmers in Malaysia consist of smallholders. In order to improve the dairy industry in Malaysia, it is important for dairy farmers adapting the sustainability practices in their management and farm operation. Implementation of sustainable practices in dairy should starts from the farm where as the farmers should understand the concept thoroughly as they can do the practices effectively in the long run. Sustainable practices also will lead to increase in profitability and enhance food security as well as sustaining the ecological and social aspects. This study attempts to discover the determinants in sustain-

ability as well as describing the socio economic characteristics of the dairy farmers which will be the indicator of adoption of sustainability practices among dairy farmers.

## Literature review

Sustainability is known as the best technique to cultivate farming which ensure the continuity of the practices, guarantee the economics, social of the people and also preserved the good environment. Sustainable agriculture are refers to technique in producing food that is healthy for humans and animals, which did not threat the environment, humane for workers, considered on animal welfare, offers good earnings for the farmers and develops rural communities ([Altieri, 1995](#)). Another two popular and widely used definitions of sustainable development are identified by [Van Calker et al. \(2005\)](#) which are “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” and “development that improves the quality of human life while living within caring capacity of supporting ecosystems”.

Generally, sustainable agriculture is defined as an approach to ensure economic, social and ecological sustainability. [Tatlidil et al. \(2009\)](#) mentioned that to achieve sustainability, the development process should includes the three dimensions of environment, economic and social whereby the protection and effective management of natural resources provides environmental sustainability, long-term employment and income stability. This, in turn, will move towards economic sustainability, and strong participation from the farming community will thus lead to the attainment of social sustainability.

The concept of sustainability is becoming widespread throughout industries in many fields. Dairy farming is no exception and the farming systems will have to evolve in this direction. However, the issues of sustainability in dairy farming or in other agricultural field did not well touch in Malaysia.

Given facts that Malaysia`s dairy farmers are both small and large scale farmers, which they

may also differ in terms of skills and experiences. It is supported by a study carried out by Boniface *et al.* (2010) which indicated that farmers are not homogenous but heterogeneous in nature. So that the farmers should not be treated equally with other farmers for they have their own husbandry practices, skills and expertise in operating their farm. Their awareness in sustainability practice also differ from each farmers which have different socio-economic characteristics and different way on seeking information of their decision making in their farm. Abolhasan *et al.* (2010) stated that the perceived importance of sustainability among farmers differs from farmer to farmer and is influenced by socio-economic characteristics as well as information-seeking behavior.

Studies on acceptance of sustainable agriculture are lacking for Malaysia. Hence, farmers in Malaysia did not really know what the sustainability terms itself and somehow they did not aware about the practices they done whether it can sustain their farm or not. This is supported by Azman *et al.* (2013) stated that there is mass of international studies which found several factors to impinge on the acceptance of sustainable among farmers, but the same scenario are lacking for Malaysia. Acceptance of sustainability practices in Malaysian dairy farm is believed can improved Malaysian dairy industry as well helping the farmers in dairy industry to understand and adopted the right practices in dairy sustainability which can enhance their livelihood in all aspects in sustainability.

D' Silva *et al.* (2011) mentioned that acceptance of sustainable agriculture practices will undeniably facilitate agricultural entrepreneurs to enhance their economic and social status, and thus, enable them to enjoy a better livelihood.

## MATERIALS AND METHODS

The data was collected using questionnaires through conducting face to face interviews with the 50 dairy farmers. In this research, all the structured questionnaires are prepared in Malays. The purpose was to guide the interview with respondents to avoid any misunderstand-

ings that might be occurring in the process of obtaining data. The Likert-like scale was used to determine the practices that adopted by the dairy farmers. The gathered data was analysed using descriptive analysis by SPSS. This data were collected by utilizing both qualitative and quantitative methods. Focus Group Discussion (FGD) technique also was applied to gather the information on dairy farming practices from the farmers and other related stakeholders. It is an effective way to explore participants' perceptions and arguments. The participants themselves determine which topics they discuss in depth, showing where their interest lies. Quantitative methods ensure high levels of reliability of the gathered data. The quantitative method ensures high levels of reliability of the gathered data. In this research the population sample was dairy farmers from Johor to provide a representative of dairy farm operations in Malaysia as they represent various forms of marketing channels and scales of operation. The sample size was 50 since it were estimated that there were about 134 dairy farmers (DVS, 2014) in the Johor state. Random sampling method was used in this research as it chosen because of it is convenience and economical (Higgins, 2009). The research areas were selected based on their agricultural potential, location, population density, and the extent to which the represented the socio-economic characteristics. The Statistical Package for Social Science (SPSS 20.0) was used to analyze the data.

## RESULTS AND DISCUSSION

### Demographic profile

From the Table 1, the respondents were classified into six classes of aged grouped. The biggest percentage was formed by group between 31-40 years old with 40%. The second classes of 51-60 formed 22 % followed by group within age range of 41-50 with 16%. The group with age of more than 60 formed about 12 % while the second smallest percentage was given by group of respondent with the range of 21-30 and the smallest percentage was 4% which refers to respondent with less than 20

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Table 1: Demographic profile of respondents (n= 50)

Demographic profile		Frequency	Percentage (%)
Age	<20	2	4
	21-30	3	6
	31-40	20	40
	41-50	8	16
	51-60	11	22
	>60	6	12
Gender	Male	43	86
	Female	7	14
Ethnic	Malay	9	18
	Chinese	1	2
	Indian	40	80
Marital Status	Married	41	82
	Single	9	18
Education	No Education	2	4
	Primary	12	24
	Secondary	29	58
	Tertiary	7	14
Involvement	Full Time	42	84
	Part Time	8	16
Experience	<10 Years	15	30
	11-20 Years	22	44
	21-30 Years	13	26
Income	RM 1,000- RM 2,000	11	22
	RM 2,001-RM 3,000	15	30
	> RM 3,001	24	48

years old. From the result obtained, 50% of the farmers who involved in dairy farming were between the ages of 15 to 40 years old. In Malaysia, people in this range of age are considered as youth (Bahaman *et al.*, 2010) Most of the respondents which are youth are willing to participate in dairy farming. It seems that they involved in this field are influenced by their family as they inherited the farm from their parents.

On gender category, 86% were male and 14% were female. In terms of ethnicity, 80% were Indian, 18% Malay and 2% were Chinese. Majority of respondent in this study were Indian as other races like Malays and Chinese are not really exposed in this farming. All the Indians normally involved in the dairy farming since childhood as it is their family heritage which done ancestrally. In marital status category, 82% were married while 18% were single.

The respondents were classified into four categories based on their educational background. The highest group was secondary level with

58%, the second highest group was primary level with 24% while tertiary level group was 4%. The smallest percentage was 4% with no formal education. Involvement of respondents was divided into two parts the full time respondents was higher at 84% as compared to part time at 16%.

On experience category, 44% were involved in dairy farming for between 10-20 years, 30% with less than 10 years of experience in dairy farming while the smallest percentage was 26% which refer to the respondent's experience between 21-30 years. The respondent with income higher than RM3001 constituted the biggest percentage at 48% while second highest were 30% by respondents with income between RM2001-RM3000. The smallest percentage was income group between RM1001-RM2000 at 22%.

### Dairy farming information seeking behavior

Table 2 represent the information seeking behavior among the 50 dairy farmers surveyed.

Table 2: Dairy farming information seeking behavior (n= 50)

Dairy farming information seeking behavior		Frequency	Percentage (%)
Technology	Internet	5	10
	Agencies	40	80
	Members	3	6
	Others	2	4
Capital	Internet	2	4
	Agencies	28	56
	Members	11	22
	Others	9	18
Technical Problem	Agencies	47	94
	Others	3	6
Seminars/Workshop	Agencies	45	90
	Members	2	4
	Others	3	6
Labour	Agencies	35	70
	Members	8	16
	Others	7	14

This study revealed the medium that the farmers use in information seeking in several aspect such as technology in dairy farming, how to get capital and labours, technical problem solving and also the seminars or workshops that they can attend, In technology aspect, about 80% of farmers tend to seek information from the agencies, 10% on internets, 6% from members and only 4% from others which was based on their own decision making or sometimes from their family and relatives. For capital aspect, 56% of the farmers seek information on capital source from agencies, 22% from members, 18% from others and 4% from the internet. While in technical problem aspect, most of the farmers seek information from agencies which is about 94% and only 6% find solution on others. In category of seminars/workshop, 90% of surveyed farmers seek information from agencies, 6% from others and last 4% from their members. For the last category of labour, about 70% of the farmers find the labour source information from the agencies while 16% from the members and last 14 % from others.

**Dairy Farming Information Seeking Behavior**

From the result obtained also, we figured that most of the farmers tend to seek information from government agencies which is by Depart-

ment of Veterinary Services (DVS) and “Pusat Perkhidmatan Industri Tenusu (PPIT). It seems that the farmers trust the extension officers’ ability and knowledge in every aspect in managing their farm. In aspects of technology, technical problems and event of seminars or workshops, most of them depend on the extension workers from the agencies. However, in labour seeking aspect, they more depend to the agency which provides foreign workers as the local workers are hard to be obtained. Some of them seek from members’ help which were their friends and colleagues and also from their family. Another way on seeking information is from internets. However, only few farmers who seek information through internets as they mostly depend on agency. The farmers who seek information from internets mostly youth and quite educated. Some of the farmers still tend to do practices which told by the parent as their family involved in dairy farming for generations.

**Sustainable dairy farming**

From Table 3, the research findings showed that the dairy farmers understood more about the farm sustainability aspect which gives the highest mean score of 4.41. The second highest mean score was the ecological aspect with mean score of 4.13. The mean score for economy as-

Table 3: Mean score of sustainable dairy farming

Sustainability of Dairy Industry	M	SD
Farming System	4.41	0.38
Environmental sustainability	4.13	0.34
Economic sustainability	4.00	0.55
Social sustainability	3.46	1.00

pect was about 4.00. The social aspect of sustainability indicated the lowest mean score which is about 3.46. The results indicated that the most favourable sustainable practice is farm sustainability. The dairy farmers should have in depth knowledge in farm sustainability, economic sustainability, social sustainability and ecological sustainability to enhance the dairy farming industry.

### Sustainable dairy farming

The results indicated that the most favourable sustainable practice is sustainable farming systems. Almost, all the farmers agreed that sustainable farming system is the essential practice to be adopted to obtain more profit and reduce the cost of production. The section in sustainable farming systems comprise of basic knowledge on farming such as suitability of breeds, animal welfare and the management of dairy herd. Those farmers are more concern on the herd health, milking process and the management since they have been in the dairy farming for a long time. Result shows that most of the farmers are full time dairy farmers.

For the environmental sustainability, most of the farmers are aware about the consequences of the waste management to the environmental. They agreed that water quality and quantity is an essential part in order to produce good quality of milk. For other aspects such as odour and its management, the farmers seem not applying the right way in managing them. Most of the farmers just discard the waste product to drench. The farmers have favourable attitude toward sustainable practices. They tend to adopt the practices that really necessary and profitable to them. This is supported by Bagheri (2010) which found that farmers had favourable attitude towards sustainable practices such as re-

source conservation, negative effects of agrochemicals, pests' invasion arising from successive cultivation and have moderate attitude towards the negative environmental effects of modern agricultural technologies.

In economic sustainability aspects, the surveyed farmers mostly have their marketing channel. They sell their milk to the cooperatives (Koperasi Penternak Lembu Tenusu Negeri Johor Bhd) that will process and markets their products. Some of the farmers sell their own milk with higher price. They believe that economic sustainability can be achieved if the price of milk is increase. The higher price will help them to offset the cost of production since the feed stuff cost is increasing gradually every year.

Social sustainability gave the lowest mean score as the farmers having problems in finding workers with good dairy working experiences and willing to do the jobs. The management on dairy herds is more complicated and need more working hour. Most of the farmers start their work in the early morning. It is because the farmers need to milk their herds twice a day to ensure higher profit and prolonged lactation time of herds. Some of the farmers employed foreign workers to manage their farm as the local worker are not willing to be in this field. Most farmers use family labour to help in the farming as they face difficulty in hiring external skilled workers.

### CONCLUSION

In conclusion, on the information seeking behaviour aspect, dairy farmers tend to seek information and basically rely on government agencies which are DVS and PPIT. Dairy farmers in Malaysia also more favour and adopted the farming system aspect compared to other as-

pect as it believed able to reduce the cost of production and obtain more profits in this industry. Dairy farmers nowadays also are moving towards sustainability in some aspect and it is believed to be sustaining in becoming years. Government helps in creating awareness of the importance in adopting this sustainability practices in dairy farming should help the farmers to understand sustainability concept and encourage them to adopt the practices in dairy farming. However, to achieve the sustainability in our dairy industry in full aspect, the three elements of sustainability which is environmental, economic, and social aspect should be fully implemented and adopted. Studies in dairy farming sustainability should be deepened in every aspect such as economic, social and environmental in other to find the most beneficial way to help the farmers.

#### ACKNOWLEDGEMENTS

The author wants to thanks Universiti Sultan Zainal Abidin (UniSZA) for providing the financial assistance and also to Department of Veterinary and Services, Milk Collection Centre for assisting throughout the study.

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#### How to cite this article:

Mohd Karim, Z., Arumugam, N., & Bonaventure, B. (2016). The sustainability practices among dairy farmers: the case of Johor. *International Journal of Agricultural Management and Development*, 6(1), 109-115.

URL: [http://ijamad.iaurasht.ac.ir/article\\_521200\\_6bf3fdff8e8e42aaca91075d6ade4929.pdf](http://ijamad.iaurasht.ac.ir/article_521200_6bf3fdff8e8e42aaca91075d6ade4929.pdf)

