TECHNOLOGY PRACTICE AMONG INDEPENDENT MALAY AND INDIAN OIL PALM SMALLHOLDERS IN RAMP 1, MUKIM OF HUTAN MELINTANG, PERAK

MUTUKUMARAN S/O SUBRAMANIAN

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ABSTRACT

The purpose of this study is to identify the status of technology practice between Independent Malay and Independent Indian oil palm smallholders in Ramp 1, Mukim of Hutan Melintang. The research design uses were quantitative study and data collection using survey method. A set of questionnaires was adapted from Malaysian Palm Oil Research and Development Board (MPOB), Universiti Putra Malaysia 1992. The sample consists of 40 independent oil palm smallholders respectively 20 Independent Malay and 20 Independent Indian smallholders. Descriptive statistic and inference was used to analyse the different practice of technology among smallholders. The result shows Independent Malay frequently guided by MPOB compare the Indian smallholders. However the technology practices by the Malay smallholders are less efficient compare the Indian smallholders. Therefore, the MPOB should monitor and make sure the Malay smallholders fully practice what was guided by them in order to increase their productivity. In future, a broad survey with bigger sample should be done to picture the present status of technology practice and contribution among various ethnic in Malaysia in economic development.

AMALAN TEKNOLOGI PEKEBUN KECIL SAWIT PERSENDIRIAN DI ANTARA KAUM MELAYU DAN INDIA, DI RAMP 1, MUKIM HUTAN MELINTANG

ABSTRAK

Kajian ini bertujuan untuk mengenal pasti amalan teknologi oleh pekebun kecil sawit. Reka bentuk kajian yang digunakan ialah kajian kuantitatif di mana data dikumpulkan melalui kaedah tinjauan. Soal selidik diadaptasi daripada *Palm Oil Research And Development Board* (MPOB) 1992. Responden kajian adalah 40 orang pekebun kecil yang terdiri daripada 20 pekebun kecil Melayu dan 20 pekebun kecil India. Statistik diskriptif dan inferens digunakan untuk menentukan perbezaan amalan teknologi dalam kalangan pekebun kecil. Hasil kajian mendapati bahawa pekebun kecil Melayu lebih kerap mendapat khidmat nasihat daripada MPOB. Walau bagaimanapun, pekebun kecil Melayu kurang mengamalkan teknologi berbanding pekebun kecil India. Oleh itu pihak MPOB perlu membuat pemantauan untuk memastikan pekebun kecil Melayu melaksanakan amalan teknologi yang dicadangkan MPOB untuk meningkatkan produktiviti. Kajian lebih mendalam dengan sampel yang lebih besar harus dilaksanakan untuk menggambarkan status semasa penggunaan teknologi dan sumbangan pekebun kecil sawit dalam pembangunan ekonomi negara.

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FFB	Fresh Fruit Bunche
FELDA	Federal Land Development Authority
FELCRA	Federal Land Consolidated and Rehabilitation Authority
RISDA	Rubber Industry Smallholders' Development Authority
SEDCS	State Economic Development Corporations
FFA	Free Fatty Acid
MPOB	Malaysian Palm Oil Board
CPO	Crude Palm Oil
PK	Palm Kernel Oil
IPM	Intergrated Pest Management
Mg	Magnesium
K	Potassium
N	Nitrogen
OER	Oil Extraction Rate
P	Phosphate

Source: (http://mpob.gov.my)

CHAPTER 1

BACKGROUND

1.1 Introduction

Oil palm was initially introduced in Malaysia when the first palms from Deli, known as Deli Dura, were planted as ornamental plants in Rantau Panjang, Kuala Selangor in 1911 (Malaysian Palm Oil: *A Success Story*, p.14) later in 1917 as a commercial crop in Tennamaran Estate in Selangor. Lim *et al*., (1996) mentioned that Malaysia has 10,141,775 ha (31.01%) of suitable land for agriculture. Moreover, good climate, an annual rainfall of more than 1800mm and with tropical lowland temperatures ranging from 29°C -33 °C are conducive for oil palm plantation in Malaysia. (Esnan Ab.Ghani *et al*, pp, 2-3, 2004).

In Malaysia, entities such as smallholders, Federal Land Development Authority (FELDA), Federal Land Consolidated and Rehabilitation Authority (FELCRA), State Economic Development Corporations (SEDCS), Rubber Industry Smallholders' Development Authority (RISDA), state-owned and private estates are

involved in oil palm cultivation. Among them, the smallholder's contribution has been given due consideration by the government. However, in order to maintain the national target of 19 ton/hec/year the smallholders are facing several obstacles and can only manage to produce 15.82 tonne FFB/hec/year (Warta Sawit 36/2007).

1.2 Background of the study

The lucrative earnings from planting oil palm in the early 70s had made the crop a major attraction to independent smallholders. The number of rubber smallholdings replanted with oil palm has been on the increase over the years. By December 1984, 29,271 rubber smallholdings (80,123 hectares) had been converted to oil palm under the replanting scheme. The actual number of smallholders participating in the oil palm industry is not well reflected by the number of smallholders who participate in the replanting scheme. A large number of smallholders have land under oil palm in FELDA, FELCRA and the State Schemes.

However, independent smallholders' develop land on their own, utilizing funds obtained from banks or other resources. Independent smallholders are those having less than 100 acres or 40.5 hectares of land (MPOB, 1992). Presently, independent smallholders own 700,015 hectares (14%) of the total oil palm planted in Malaysia (Development of Statistics, Malaysia, 2012).

Table 1.2.1

Distribution of Oil Palm Planted Land According to the Agencies Involved for 2010 and 2011 (in Hectares)

	2010		2011	
Categories	Hectare	%	Hectares	%
Smallholders	651,385	13.42	700,015	14.00
FELDA	705,574	14.54	700,015	14.00
FELCRA	162,556	3.35	150,003	3.00
RISDA	78,791	1.62	100,002	2.00
STATE	320,941	6.00	300,006	6.00
Private Estate	2,934,519	60.46	3,050,066	61.00
Total	4,853,766	100.00	5,000,109	100.00

Source: Economics and Industry Development Division MPOB (2012).

Referring to table 1.2.1, it shows that Malaysia has more than 4.85 million hectares of land planted with oil palm in 2010 compared 5.0 million hectares in 2011. The statistics show that smallholders land increased by 0.58 percent compared the other agencies between 2010 and 2012 (Statistic of Department MPOB, 2012). This indicates that there is a remarkable effort from the smallholders and their contribution is becoming more important. Moreover, the integrated support by the Malaysian Palm Oil Board (MPOB) through '*Tunjuk, Ajar dan Nasihat*' (TUNAS) members has helped the smallholders, especially who lack the exposure to technology.

1.3 Statement of the Problem

The number of smallholders is increasing due to the price of oil palm steadily increasing and the industry becoming lucrative. However, their productivity has not met the national target of 19 tonne FFB/ha/years (Wartasawit 36/2007). The independent smallholders could only manage 15.82 tonne FFB/ha/years due to socio-economic factors and insufficient use of technology, which directly influences their

productivity. Therefore, there is a need to identify the socio-economic status and the technology that is practiced by independent smallholders, especially those who own land in peat soil because peat soil needs special technology to increase productivity.

Table 1.3.1

FFB yields of early oil palm plantings in deep peat soil in United Plantations Berhad (1961-1966 plantings, 214 ha)

Year	5	6	7	8	9	10	11	12	13	14	15	16
FFB Yield	11.4	12.8	17.1	16.6	15.7	13.9	13.0	12.6	11.8	11.4	10.2	7.8

Source: Gurmit (1989)

Referring to table 1.3.1, it shows that yields were rapidly declining to uneconomical levels after about 10 to 12 years from initial planting. Moreover, the higher output did not exceed more than 18.0 tonnes per hectare in deep peat soil.

Table 1.3.2

Earlier Yield Performance of Oil Palm in Peat Soil

Peat class	Range in FFB yield (t ha^{-1}/ yr^{-1})
Shallow (<1 m)	6.7 -23.7
Moderate deep(1.3 m)	7.9 -20.2
Deep (> 3)	4.8 -17.3

Source: MPOB's survey in 1982

Referring to table 1.3.2, it shows that deep peat soil is marginally suitable for cultivation and it managed to produce 17.3 FFB yield tonnes per hectare compared to the moderate and deep soil.

Hence, to overcome the problem, the government, through MPOB had identified technology practices such as the optimization of agro-management practices to increase productivity in peat soil (MPOB, 1982). It is believed, based on the experience of MPOB, that technology practices can increase productivity in peat soil if the correct methods are applied.

The technology practices referred to are support services, planting material, weeding practices, fertilizer application, pest control and harvesting practices. Thus, the success of technology practices among smallholders depends on socio-economic factors like racial background, age, education, income, size of household and adetermine the significant association between independent Malay and Indian smallholders in relation to technology practices. Previous research has shown that independent Chinese smallholders have less problems in applying technology practices compared the independent Malay smallholders (Alang P.Zainuddin *et al.*, 1988).

In addition, previous research has also shown that the Chinese are better in applying technology practices compared to the Malays (Alang P.Zainuddin *et al.*, 1988). Their income and productivity were also higher compared to the Malays. The Chinese did not face too many background problems and surrendered their land to contract workers to cultivate. Contract labourers are well known for their technology practices because they are familiar with that part of their job. However, when compared to Malay smallholders, most of the Malays faced internal problems such as financial aid, old age, minimal use of outside labour and more dependent on family members and the small size of land, which eventually motivated them to apply the

required technology practices. Thus, in order to recognize the Indian smallholder's contribution to the nation there is a need to identify their technology practices in oil palm cultivation. The researcher, with confirmation from the MPOB, had concluded that there were no previous studies based on ethnic background. Recent studies had focused on the effectiveness of support services by TUNAS members on smallholders.

The Chairperson of MPOB in Teluk Intan, Mr. En.Azhar bin Ahmad, after analysing previous research, had supported this research, which primarily focuses on independent Malay and Indian smallholders. He had also requested that the researcher hand over a copy of the thesis to MPOB.

Therefore, the researcher had chosen independent Malay and Indian smallholders for this case study and had expected the result to show some immediate implications that needed the attention of these two groups. As we know these groups are the lowest income groups in this country that need special attention and support from the government. The case study was initiated in Ramp 1, Teluk Kerdu village in the Mukim of Hutan Melintang. Ramp 1 is an appropriate place to gather information on Malay and Indian smallholders who live in nearby villages and estates.

1.4 Objective of the Study

The objectives of this study are:

1. To examine the socio-economic profiles of independent Malay and Indian oil palm smallholders.
2. To examine the status of independent Malay and Indian oil palm smallholders in relation to technology practices.

3. To determine the association of independent Malay and Indian oil palm smallholders in technology practice.

1.5 Research Questions

Result from the analysis can be used to answer these questions as follows:

1. What is the socio-economic status of independent Malay and Indian smallholders in the oil palm sector?
2. What is the status of independent Malay and Indian oil palm smallholders in relation to technology practices?
3. Does it indicate a significant association between independent Malay and Indian oil palm smallholders and the service agencies?
4. Does it indicate a significant association between independent Malay and Indian smallholders and planting materials?
5. Does it indicate a significant association between independent Malay and Indian smallholders and weeding control?
6. Does it indicate a significant association between independent Malay and Indian smallholders and fertilizer application?
7. Does it indicate a significant association between independent Malay and Indian smallholders and disease and pesticide control?
8. Does it indicate a significant association between independent Malay and Indian smallholders and harvesting practices?

1.6 Analysis of the Hypotheses

The outcome of the limitations and objectives of the study are as follows:

H_0: There is no significant association between independent Malay and Indian smallholders and service agencies.

H_0: There is no significant association between independent Malay and Indian smallholders and planting materials.

H_0: There is no significant association between independent Malay and Indian smallholders and weeding control.

H_0: There is no significant association between independent Malay and Indian smallholders and fertilizer application.

H_0: There is no significant association between independent Malay and Indian smallholders and disease and pesticide control.

H_0: There is no significant association between independent Malay and Indian smallholders and harvesting.

1.7 Significance of the Research

As the ultimate objective of this survey is to suggest ways and means to improve the socio-economic well-being of independent oil palm smallholders, this research might provide useful information to the:

1.7.1 Farmers Association in the related *Mukim*

The Farmers Association can use this survey to identify smallholder's problems and improve the smallholder's income and output by various approaches such as

conducting motivation courses, encouraging registered smallholders to participate in their cooperatives and rendering support services.

1.7.2 Department of Agriculture

The survey can be a reference for the department of agricultural when comparing the economic contribution of various ethnic groups and to help the low-income group of smallholders who may need the department's help.

1.7.3 Malaysian Palm Oil Board (MPOB)

This survey can also be a reference to MPOB Tunas members when looking into the smallholder's problems and rectifying these problems. They can identify which problem or smallholder that needs their support services in order to increase productivity. The findings could be used to recommend new strategies in technology practice, especially in peat soil management. Subsequently, these steps could help the independent smallholders to increase their output.

1.8 Limitations of the Study

This study was conducted in Ramp 1 Teluk Kerdu village in the *Mukim* of Hutan Melintang located in the Hilir Perak District. There are 39 villages in the *Mukim* of Hutan Melintang and most of the villagers work as oil palm smallholders (Farmers Association of Hutan Melintang, 2009). The two main oil palm plantations located in

the *Mukim* of Hutan Melintang are the Unitata Plantations and the Southern Perak Plantations.

Most of the workers are Indians and some of them are also independent smallholders, while most Malays live in villages. About 6829 smallholders cultivate 17,222 hectares of oil palm, which represents 40 % of land occupied compared to other commodities in the Hilir Perak District. The Malays, Chinese and Indians comprise of 60.38%, 28.89 % and 10.5% of the population, respectively. (Buku Program Pembangunan Daerah, Jabatan Pertanian Negeri Perak, 2007).

The researcher found that there were around 25 independent Malay and 22 independent Indian smallholders who sold oil palm fruits in the ramp. The ramp authorities informed the researcher that there were approximately 20 Malay and 20 Indians who actively transacted and kept in contact with the authorities and data about them were available for reference. Hence, the researcher chose these active independent Malay and Indian smallholders as respondents in this survey.

1.9 Definition

1.9.1 Technology Adoption

Technology adoption means a process to improve production efficiency and quality of products.

According to Richard E.Schulties (2009):-

'Technology comes from Greek root word meaning systematic treatment; it is today defined in our dictionaries as the science of systematic knowledge of the industrial arts.'

Botanical Museum of Harvard University (2009) defined technology as

"Body of knowledge available to civilizations that is of use in fashioning instruments, practising manual arts and skills and extracting or collecting materials"

The technology adoption was practiced in various aspects of work or discipline such as in the preparation technique, planting materials, planting density, fertilizer management practices and integrated pest management and harvesting process, drainage and water management and mechanization in oil palm plantations (MPOB, 1992).

1.9.2 Oil Palm Smallholders

Oil palm growers who possess less than 40.5 hectares (100 acres) of oil palm holdings (MPOB, 1988).

1.9.3 Organized Oil Palm Smallholders

These oil palm growers do not participate in land development schemes. They could have developed their land either utilizing RISDA replanting subsidies or funds raised from some other resources. These smallholders, unlike the organized smallholders, are

principal decision makers in relation to production and marketing of oil palm (MPOB, 1988).

1.9.4 .Independent Smallholders

Oil palm smallholders who possess less than 40.5 hectares and do not participate in land development schemes are called independent smallholders (MPOB, 1988).

1.9.5 Extension Agencies

These government and semi-government agencies are mandated to carry out direct extension works with smallholders. The Malaysian Palm Oil Board (MPOB) TUNAS subsidiary is regarded as an extension agency that has direct extension links with smallholders (MPOB, 1988).

1.9.6 Intensity of Extension Services

The intensity of extension services is determined by measuring the frequency of contact between extension agents from all extension agencies and smallholders over a period of six months. These contacts include personal visits, farm visits and visits to other meeting places (MPOB, 1988).

1.9.7 Coverage of Extension Service

The coverage includes all extension activities expanded by extension agents in relation to the transfer of relevant technologies to smallholders. These activities include demonstrations, follow-up visits and distribution of pamphlets relating to such technologies (MPOB, 1988).

1.9.8 Peat soil

Peat is an organic soil and the thickness of the organic soil materials should cumulatively be more than 50 cm in the upper 100 cm of the profile. It should have more than 65% loss on ignition, which determines the amount of organic matter in the peat. Most tropical peat soil belongs to the soil order *Histosols* and the sub-orders *Tropofibrists* and *Tropohemists*. Peat soil consist of partly decomposed biomass and develops when the rate of biomass production from adapted vegetation mangroves, swamp forest, in depressions or wet coastal areas is greater than the rate of chemical breakdown. The rate of decomposition is reduced due to the presence of a permanently high water-table that prevents the aerobic decomposition of plant debris (Andriesse, 1988: Driessen, 1978).