

Evidence for Generating High Margin Profit by Cost Cutting of Sustainable Agriculture Farming Input

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Abstract: We present evidence on how the farmers were able to generate high margin profit based on natural farming method. This opportunity is available if only the farmers can adopt sustainable agriculture system. In answering the question “Does sustainable agriculture system able to contribute economically to local farmers (CBO)?”. This research has employed case study methodology. The study was conducted in Sekinchan, Selangor, Malaysia. Sekinchan is located on the south west coastal plain of Sabak Bernam. This site can be considered as the first site by the CBO that implementing and popularizing this sustainable method of farming in Selangor. From the evidence, it is very clear that sustainable agriculture system has provided high margin profit to those farmers. It is very important for us to know that the ability to cut costs on farming inputs not only gives advantages to the farmers themselves but also reflect an improvement of food quality and social ties among local people. In a nutshell, sustainable agriculture system has a bright potential as a mechanism in alleviating poverty.

Key words: Sustainable agriculture • Farmers • Community-based organization • Malaysia

INTRODUCTION

In this paper we present evidence on how the farmers were able to generate high margin profit. This opportunity is available if only the farmers adopt sustainable agriculture system. This project is a part of Rapid Agricultural Appraisal Knowledge System (RAAKS) analysis series describing some observations of an agricultural community-based organization (CBO). The aim of this work is to highlight sustainable agriculture system able to act as a mechanism in order to alleviate poverty by cutting unnecessary input cost.

Sustainable agriculture is defined as equilibrium of food production, safety, profitability, social responsibility and environmental care [1]. In a way, it can be attributed to the ability of an agro-ecosystem in order to maintain productivity when subject to a major disturbing force such as frequent pesticide applications or invasion by a new pest [2]. Moreover, sustainable agriculture is able to improve the income of farmers by reducing the marginal cost of producing one unit of output. However, the challenge of sustainable agriculture is to achieve the integral objective of being productive, profitable, sustainable and non-polluting or environment friendly [3].

It is well known that perceived profitability was the most important factor affecting the adoption of sustainable agricultural practices involving intense management and those requiring fewer purchased inputs [4]. We could not deny that agriculture sector and connected practices being the major way of life in developing countries specifically. Therefore, there is an urgent essential to defend the indigenous knowledge, practices and resources in these areas from the Western onslaught [5].

The Green Revolution was a national agricultural program, hence the knowledge (natural farming) was not transferred to farmers as it should be for almost thirty years [6]. Sustainable agriculture in Malaysia is usually initiated by other-than-government-NGOs, CBOs or individual persons.

Here, we highlight some advantages of natural farming which are as follows. First, it potentially increases profit in terms of reducing production cost by 30 percent; and using of available local input materials which are much cheaper; and boosting productivity three to four times more than conventional farming. Secondly, it is well-known that the products are safe for consumption because input materials used consisted of fermentation

and extracts from plants and animals and they do not use synthetic chemical inputs (fertilizer, pesticides, hormones etc.).

In Malaysia, extension officers were exposed to sustainable agriculture in as early as the 1980s. There are being exposed by several intensive programs including learning the natural farming method in Korea.

MATERIALS AND METHODS

This research was conducted in Sekinchan, Selangor, Malaysia. Sekinchan is located on the south west coastal plain of Sabak Bernam [7]. This site can be considered as the first site by the CBO that implementing and popularizing this sustainable method of farming throughout. The district is bordered by Perak state in the north and Pahang state in the east. Sekinchan is about 100km from Kuala Lumpur and is situated along the main coastal road between Tanjong Karang to the south and Sungai Besar to the north. On average, the total area of Sabak Bernam is 1,061.32 km². Selangor is considered as the sixth state of Malaysia that provides agricultural product to consumers [8].

In this case, land area as much as 433.83 square km (43.54%) is allocated for agriculture purpose which is the second highest after forest reserves (44.49%). Rice farming has been monopolizing the use of land with a total of 93.5% making it the most important agricultural activities. Paddy land of Sekinchan is part of Tanjong Karang Irrigation Scheme (TKIS). This paddy land is divided into 16 paddy blocks with each of it is divided into paddy lots of about 3 acres (1.2 ha).

At the beginning of the project, the CBO was named as the SRI D'9 consists of individual farmers who have their own land. As much as 148.8 ha of land are covered by the SRI D'9 (124 lots). Most of the farmers have been involved in agriculture for as long as 20 to 30 years. Realize the harmful and dangerous of the previous method, such long experience makes them to change the lifestyle of standard farming. The efforts to convert to natural farming have started in September 2010 with Sungai Leman as its testing ground.

It was not easy to establish this CBO because it was not easy to gain trust from the farmers and to switch from synthetic chemical input to natural farming input. It is hard to change and accept the change because crop yields were the only main income for their livelihood. The SRI D'9 has twenty-three (23) shareholders. There are ten (10) of them actively operate the farms and manage the organization. It should be noticed that some of the farmers are preferred to be a sleeping partners who include consumers of natural farming product. Overall, they have

more than hundred (100) farmers/workers on both full-time and part-time basis [9].

Basically, this research was conducted in two (2) phases: 1) getting the whole picture; and 2) verifying the interpreted data by CBOs. In this research, to obtain a reliable data analysis, the study applied the triangulation technique. For instance, semi-structured interview, observation, course participation, field notes, documents and audiovisual materials were used to uncover barriers and benefits [10-12]. The data were then analysed using Rapid Agricultural Appraisal Knowledge System (RAAKS) tools. In this research, RAAKS was used to guide interview sessions and help analyze the data.

RESULTS AND DISCUSSION

This section is divided into two (2): 1) the sources; and 2) farming input saving.

The Sources: Most of these raw materials are locally available either by product/waste or brand new materials. Table 1 shows the sources of farming inputs i.e. raw materials, availability and its functions. All inputs are easily produced and derived from readily available resources such as eggshell, cow's intestines, cardboard, newspaper, waste oil, vegetable/fruit waste, milk and molasses. This indirectly supports the concept of 4R-reduce, reuse, recycle and refuse [13].

This type of crop inputs includes indigenous microorganism (IMO), effective microorganism (EM), fermented plant juice (FPJ), oriental herbal nutrient (OHN), lactic acid bacteria (LAB), fish amino acid (FAA), water-soluble calcium (WCa), water-soluble calcium phosphate (WCaPO₄³⁻) and insect attractant (IA) [14, 15]. A diversity of crops or varieties can help protect farmers against failure. For example, in a single Amazon community in Peru, 168 different species of plants are cultivated [16].

We could say that this kind of agriculture can feed the world because it takes less than one acre to feed one human being. However, it is surprising that we are currently farming 12 billion acres, yet more than one billion people still cannot get enough to eat [17, 18].

Farming Input Saving: Based on the interviews, the majority of the farmers admitted that they managed to save a lot from avoiding the use of synthetic chemical inputs. One good impact is that they can then spend the money saved for other purposes such as children's school matters, renovate their houses and most importantly they can allocate that saving for pilgrimage to Makkah.

Table 1: Farming Inputs by the SRI D⁹

Raw materials	Available at	Functions
Ripe bananas, pineapples or papayas	Nearby orchard, market	Fertilizer-fermented plant juice (FPJ)
Remaining of fish	Wet market (fishmonger)	Fertilizer-fish amino acid (FAA)
Cow/buffalo bones	Wet market, 'gearbox' restaurant, banquet (kenduri)	Fertilizer-calcium
Eggshells	'Bahulu' maker, 'murtabak' stall	Fertilizer-calcium
Wild spinach (<i>Ipomoea spp.</i>)	Around the village	Fertilizer-promotes foliar growth-fermented plant juice (FPJ)
Sea water	Sea	Fertilizer-high mineral content
Jering bean (<i>A. Jiringa sp.</i>)	Nearby forest, lawn	Rat repellent
Tobacco	Any retailer	Brown planthopper ¹ (<i>Nilaparvatalugens</i>) repellent
Bakawali (<i>Epiphyllumanguliger</i>)	Nearby forest, lawn	Aphids repellent
Garlic, ginger, cinnamon	Any retailer	Avoid disease
Kam cui (licorice- <i>Glycyrrhizauralensis</i>), tong kui (angelica- <i>Angelica acutiloba</i>)	Chinese medicine shop	Fertilizer-oriental herbal nutrient (OHN)
Molasses, brown sugar, 'cukanipah' (palm vinegar), 'niranipah ² ' (palm sugar)	Any retailer	'Food' for indigenous microorganism (IMO)

¹Brown planthopper in Malay language is benaperang

²Scientific name of niranipah is nypafruticans or commonly known as nipa palm

Table 2: Saving comparison between conventional farming and natural farming

Farming inputs cost	Conventional farming (RM)	Natural farming (RM)	Natural farming (RM)
	Season II, 2010	Season I, 2011	Season II, 2011
Natural farming product	-	140	140
Insecticides	1157	109	50
Fungicides	318	30	30
Rat poison	10	10	10
Additional fertilizer	1280	360	-
Herbicides	168	168	40
Total	2933	817	270
Saving	2933-817=2116	817-270=547	

Previously, when they still applied conventional farming system, every season they had to spend roughly RM 2,933 and after the switch to natural farming their spending fell to about RM 817 (See Table 2). The first reduction is 72% which is when the CBO slowly switching to natural farming methods. Followed by the second reduction is 90% whereas the CBO tried to minimize herbicides and eliminate additional fertilizer.

CONCLUSION

We can conclude that a sustainable agriculture system is able to enhance the generation of local income. In the long term run, sustainable agriculture system has potential to alleviate poverty among the main actors in the food supply chain in Malaysia especially. Of course, it is not easy to change and to prove the mentality of the most farmers who prefer with the conventional method. But, we

hope that with the promotion of government and other sector, it can be a reality. It is very important for us to know is that the ability to cut costs on farming activities not only gives advantages to the farmers themselves but also reflect an improvement of food quality and social ties among local people.

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