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Smallholder Farmers' Readiness for Contributing to Crop Microtakaful Scheme

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Abstract: The study intends to identify smallholder farmers' readiness to participate in Crop Microtakaful Scheme. This protection is significant for smallholder farmers to provide sustainable economic growth and food security. To understand the necessity of having the scheme, a few key areas must be observed. An overview of the smallholder farmers in Malaysia is presented, focusing on their demographics, readiness to participate in the scheme, and affordable contributions. In addition, risks and perils in agriculture, including natural disasters, pests, and crop diseases, are also outlined. The role of agriculture insurance/takaful is also discussed, highlighting its many benefits to smallholder farmers. For this study, a survey is carried out among 275 smallholder farmers to gain information on their demographic profiles, farming activities, and willingness to contribute to the Crop Microtakaful Scheme. The information is vital in developing a suitable and well-accepted Crop Microtakaful Scheme, specifically among the smallholder farmers in Malaysia. Findings show that a large percentage of the smallholder farmers were ready to participate in a takaful scheme to protect their crop losses. Contributions vary greatly, with 54.2% of respondents willing to contribute an amount ranging from RM50.00 to RM149.00, while 33.9% of respondents are only willing to contribute an amount of less than RM50.00. The Crop Microtakaful Scheme can reduce the community's dependence on the government with stakeholders' involvement in contributing a certain sum as part of their corporate social responsibility initiative.

Keywords: affordable contribution, crop microtakaful, readiness, smallholder farmers.

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INTRODUCTION

Agriculture in Malaysia focuses on transforming a traditionally small-scale, production-based sector into a large-scale agribusiness industry that contributes to economic growth and sustainability (Salleh et al., 2021; Nodin et al., 2022). Nearly twenty-four per cent of Malaysia's land area is agricultural land, where 7,605,000

hectares is arable and permanent cropland (Zazali& Johar, 2022). The tropical climate with a humidity level of 90% provides Malaysia's proper conditions to produce various crops (Hazir et al., 2020; Firdaus et al., 2020). Agriculture remains an important sector of Malaysia's economy by contributing to national income and export earnings (Reaz et al., 2020; Li & Solaymani, 2021; Adnan & Nordin, 2021). In 2018, the industry contributed 7.3% or RM99.5 billion to Malaysia's Gross Domestic Product (GDP) (Shamsuddin et al., 2021). Oil palm was the major contributor to the agriculture sector's GDP at 37.9%, followed by other agriculture, including food crops, at 25.1% for 2018 (Yap et al., 2021). The industry continues to be one of the essential growth engines, with a 2% increase in productivity growth in 2019, employing 10.36%. The sector is also a major supplier of food and raw materials to resource-based industries. In line with its prominent role, the government continues to undertake adjustment measures to expedite its competitiveness to face new challenges at domestic and international levels. The growing importance of agriculture, particularly in food security, has prompted the government to focus on agriculture as embedded in relevant policy documents such as the National Food Security Policy, Ninth (9MP) and Tenth Malaysia Plans (10MP), National Agrofood Policy, National Commodity Policy, and two National Key Economic Areas (NKEA) agriculture and palm oil under the broad Economic Transformation Plan (ETP) for the whole economy.

Taman Kekal Pertanian Malaysia (TKPM) program or Permanent Food Production Areas is proposed as a strategy under the Third National Agricultural Policy (DPN3) to encourage large-scale, commercial and high-tech agricultural projects by entrepreneurs, including the private sector. A permanent food crop production zone initiative aims to increase the country's sustainable and quality food production in collaboration with entrepreneurs in food production. The program is also aimed to increase the participants' net income to at least RM3,000 per month and encourage the private sector's involvement in food crops production.

In a general view of Malaysia's agricultural industry, the farming community receives the lowest salary compared to other sectors. Thus, the farming community needs to earn sufficient income from their agricultural harvest, directly determining its food security (Giller et al., 2021; Madsen et al., 2021). However, the agricultural industry also faces uncertainties due to weather, yields, prices, government policies, global markets, and others that affect farm income (Komarek et al., 2020; Dong, 2021). This highlights the importance of developing the Crop Microtakaful Scheme for smallholder farmers. Therefore, risk management is necessary to provide alternatives to mitigate the financial impact of such uncertainties. Hence, it is crucial to modernise and transform the agricultural industry by creating a takaful scheme that protects all farming activities and assets (Fikri et al., 2022).

Agricultural insurance is a particular line of property insurance applied as a financial tool to transfer production risk associated with farming to a third party via a premium payment. Agricultural insurance is not limited to crop insurance, as it also applies to livestock, bloodstock, forestry, aquaculture, and greenhouses. In many countries, the public sector provides agricultural insurance, insuring small scale farmers against crop losses to adverse weather or other hazards. There is no stand-alone crop insurance for the takaful scheme available in Malaysia. To ensure the sustainability of the farming activities and food security, Crop Microtakaful Scheme is proposed exclusively for smallholder farming for the sustainability of the agriculture sector. Crop Microtakaful enables farmers to remain creditworthy even in years of significant crop loss and avoid poverty. More importantly, it may enable them to pursue riskier but potentially much more profitable farming activities, which usually centre on credit to purchase new production enhancing technology. Crop Microtakaful has a potential role in leveraging small farmers' access to rural finance.

METHODS

This study employed a quantitative approach. A quantitative study is a descriptive assessment of farmers' hazards in frequency and severity using questionnaires. Simple sample techniques ensured a high response rate from 275 smallholder rice fields (less than 2 hectares) of paddy, fruits, and vegetables. A study was done to elicit information about smallholder farmers, including their demographic profiles, the crops they raise, the hazards they face, and the community's affordable premium. The survey surveyed 275 smallholder farmers selected by the Federal Agricultural Marketing Authority (FAMA). The data was acquired via a questionnaire survey divided into three portions. The first portion examined the agricultural activities of smallholder farmers and the selection of natural hazards.

Meanwhile, the second component of the questionnaire asked respondents to estimate their feasible contribution to the takaful plan. The final segment compiled demographic data on smallholder farmers. The Statistical Package for Social Science (SPSS) software version 22.0 was used for all statistical procedures.

RESULTS AND DISCUSSION

Based on 275 responses obtained, a demographic profile of respondents is presented in Table 1. Eight demographic characteristics are discussed, including gender, age, race, education level, state, number of families dependent, type of housing, and housing status to describe the sample characteristics. The majority of the respondents are male (81.5%) compared to females (17.8%), mainly from the age group between 31 to 50 years old, which accounted for 52.7%. 35.2% of elderly respondents follow this with more than 50 years old, and 12.0% of young smallholder farmers with less than 30.

Table 1 Demographic Profiles of the Respondents

Respondent's Characteristics	Percentage(%)
Gender	
Male	81.5
Female	17.8
Age group	
Below 20	0.7
21-30	11.3
31-40	29.1
41-50	23.6
51-60	18.5
Above 60	16.7
Race	
Malay	96.0
Chinese	1.5
Indian	0.7

Education	
SRP	22.5
SPM	32.4
Diploma	22.2
Bachelor Degree	4.7
State	
Terengganu	17.8
Kelantan	18.5
Pahang	4.0
Kedah	18.2
Pulau Pinang	19.3
Selangor	8.7
Johor	13.5
Number of Family Dependent	
3 or less	49.8
4 to 6	42.5
7 to 9	7.7
Type of Housing	
Terrace	4.4
Semi-Detached	3.3
Bungalow	92.3
Housing Status	
Personal house and land	89.4
The personal house rented land	1.8
Personal house, temporarily occupied land	2.9
Rented House	3.7
Temporarily occupied house	2.2

Most respondents are smallholder farmers on the East Coast of Malaysia (Terengganu, Kelantan, and Pahang), which accounted for 40.3%. Meanwhile, 37.5% of the respondents are from the northern states (Kedah and Pulau Pinang), 13.5% from Johor, and 8.7% from Selangor. In terms of race, most respondents are Malay (96.0%), with a small fraction of Chinese and Indians (2.2%). The majority of the respondents accounting for 54.9%, received education at the secondary level and 26.9% at the tertiary level. A large percentage of the respondents, comprising 92.3%, live in bungalows, whereas 3.3% are in semi-detached housing, and 4.4% live in terrace houses. The majority live in their houses and land (89.4%), while the rest either rent their homes, the land or squat.

Farming Activities

Information on the smallholder farmers' farming activities is also gathered from the distributed questionnaires and presented in Table 2. The data is vital in understanding their capabilities to improve their livelihoods.

From Table 2, it is found that most of the respondents cultivate either vegetables (49.8%) or fruits (41.8%), and a small number of them cultivate paddy (8.36%). The smallholder farmers' vegetables include chillies, cucumber, green leaves, Kasturi lime, angled luffa, water spinach, spinach, long beans, green beans, turmeric, ginger, and lady's fingers, pumpkins, and cabbage. On the other hand, the cultivated fruits include honeydew, corns, jackfruits, rockmelon, roselle, sugar cane, watermelon, and pineapple.

Table 2 Farming Activities of the Respondents

Item	Percentage(%)
Types of crops	
Vegetables	49.8
Fruits	41.8
Grain	8.4
Experience in Farming	
Less than five years	35.6
5 - 10 years	22.5
11 – 15 years	17.8
16 - 20 years	8.0
More than 20 years	16.0
Size of Farm	
Less than 1.0 acre	9.5
1.0 – 1.9 acres	39.3
2.0 – 2.9 acres	26.2
3.0 – 3.9 acres	16.0
4.0 acres and more	9.1
Land Status	
Freehold	64.8
Rental	25.6
Lease	6.6
Others	2.9
Advice from:	
Department of Agriculture Malaysia	49.8
MARDI	9.1
FAMA	18.9
Others	29.1

Table 2 also shows that more than half of the respondents, or 58.1%, have less than ten years of experience in farming. Next, 25.8% of the respondents experienced farming for 10 to 20 years, and another 16.0% have been involved in farming for more than 20 years. The findings also indicate that many respondents are running a farm between 1 to 1.9 acres (39.3%). Another 26.2% with a farm size of 2.0 to 2.9 acres, 16.0% with a farm size of 3.0 to 3.9 acres and a small fraction of the farms are more than 4.0 acres (9.1%) or less than 1.0 acre (9.5%). The respondents carry out their farming activities on land, which is mainly freehold (64.8%), rental (25.6%) or

on the lease (6.6%). They also admitted that they received helpful advice on farming from the Department of Agriculture Malaysia (49.8%), the Federal Agricultural Marketing Authority, abbreviated as FAMA (18.9%) and the Malaysian Agricultural Research and Development Institute or MARDI (9.1%). Other than that, 29.1% of the respondents

Readiness and Affordable Contribution

Results from the survey also found that a large percentage of the smallholder farmers, or 72% of the respondents, are ready to participate in a takaful scheme to protect their losses, as shown in Table 3. Their contribution varies greatly, whereby 54.2% of the respondents are willing to contribute the amount of RM50.00 to RM149.00, and 33.9% of the respondents are only willing to contribute an amount of less than RM50.00. A small percentage of respondents, 12.0%, are willing to contribute more than RM150.00.

Table 3 Readiness in Contributing to Crop Microtakaful Scheme and Affordable Contribution

Item	Percentage(%)
Interested?	
Yes	72
No	28
Contribution (RM)	
less than RM10.00	17.5
RM10.00 – 49.00	16.4
RM50.00 – 99.00	31.2
RM100.00 – 149.00	23.0
RM150.00 – rm199.00	3.8
200.00 and more	8.2

Studies related to agriculture insurance have been carried out as early as the late 1700s. European countries started the crop insurance scheme in the late 19th century. Although studies said, the country has long been establishing insurance for the industrial crop, not Malaysia. However, insurance for the agriculture industry is considered new. The national agriculture crop insurance scheme has never been implemented in Malaysia (Reyes et al., 2017; Musa et al., 2021). Farmers have been forced to prepare and make decisions about environmental uncertainties (Do et al., 2020; Seebauer & Winkler, 2020; Fleming et al., 2021). They need to practice life's best ways and strategies to keep their crops and deal with unexpected natural hazards like floods, drought, pests, and diseases (Hamid et al., 2016; Alam et al., 2020; Shahzad et al., 2021). Some private commercial insurance for cocoa, fruit, coconut oil palm and rubber for plantation export crops has been limited since the 1980s. These crops have been insured to plantation or forestry fire policy along with additional perils. The Malaysian government invited the National Insurance Association of Malaysia (NIAM) in 2002 to propose a national agriculture insurance program implementation. In 2004, with the Zurich branch's support, the partner reinsurance company NIAM was ready with the proposed Paddy Multiple Peril Crop Insurance (MPCI) program. Unfortunately, although the proposal to establish the program gets well to feedback and has been well received by NIAM's members, the farmers' community, and the government, the program is cancelled from being implemented due to the high premium rates.

The Malaysian government does not give any subsidies to the agricultural insurance program. The private sector in Malaysia offer insurance for plantation crop, and the other name is insurance for growing trees. Industrial crops such as rubber and oil palm have been added to the fire insurance policy. To help the farmer's community in Malaysia mitigate the losses due to natural disasters, the government initiated an insurance plan in 2013 (Salleh et al., 2021). In 2013, consultants were appointed by the Ministry of Agriculture to propose a plan and establish crop insurance involving livestock, crops, and also other agricultural livelihood in Malaysia. In line with the program's development and improvement, the Malaysian government has provided an optimum allocation to some parties for a particular purpose. Previous studies mentioned that crop insurance is the best alternative that has long been practised in most developed countries and developing countries, practising it to help farmers' communities take precautions to face any uncertainty that could happen anytime in the future (Salleh et al., 2017). The significant and essential risks faced by farmers are increasing and decreasing prices, light rainfall, disease attacks, drought, and pest (Salleh et al., 2017). As noted before, climate change's main risk will cause undesirable events such as droughts and floods.

According to Salleh et al. (2020), there is an increase in the frequency of global catastrophic events caused by extreme weather events such as droughts, floods, and frosts. The previous reality demonstrates why farmers, whether big-holder or smallholders, are concerned and want to take care of their crop areas as best they can. One of the purposes is to maintain the crop's excellent quality and ensure that the future's resulting product is in the best possible condition. The only best solution to help farmers in Malaysia overcome the problem is buying a crop insurance/takaful scheme. In enhancing and strengthening a local economy's resilience, the most appropriate financing scheme is insurance (Salleh et al., 2018; Foziah et al., 2018).

Table 4 Selected Availability of Crop Insurance in Developed and Developing Countries

	Subsidised	**Unsubsidised**
Developed Countries	Austria	Australia
	Canada	Germany
	Cyprus	Greece
	Czech Republic	Hungary
	France	New Zealand
	Japan	Sweden
	Portugal	The Netherlands
	Slovenia	
	South Korea	
	Spain	
	Switzerland	
	The United States	
Developing Countries	The Philippines	Cambodia
	Thailand	
	Vietnam	
	Myanmar	

Crop insurance schemes provide more than just protection from risk. It plays a vital role in keeping the agriculture industry functioning. Crop insurance in many countries is considered essential. Agricultural producers, including farmers, purchase ranchers and others to protect against either the loss of their crops due to natural disasters or the loss of revenue due to declines in agricultural commodities prices. The authorities are using a combination of subsidies and education to increase the acceptance of relevant policies in crop insurance. Agricultural insurance products have historically been expensive, under-appreciated and lacking the numbers to make them a sensible proposition for the government, the insurance companies and the farmers. Table 4 indicates the implementation of crop insurance in most parts of the developed and developing countries. Crop insurance in some countries is either federally subsidised or unsubsidised. Insurance subsidies ensure disaster assistance for quick access to funds when disaster strikes and protect banks and agricultural credit programs from bad debt. This scenario could support farm incomes, substitute for safety net and disaster assistance spending, improve coverage equity, and increase food production or agricultural exports for national purposes. Subsidised agricultural insurance is also adopted in developing ASEAN countries such as The Philippines, Vietnam, and Thailand, offering personal and social benefits.

Table 5 Details of Crops Insurance Policy in ASEAN

Country	Insurance Products Availability / Target Crop(s)	Risk(s) Covered	Target Beneficiaries	Source of Premium	Implementing Agency
Brunei DS	-	-	-	-	-
Cambodia	Rice (rubber, cassava, maise)	Excessive rain, drought, dry days	smallholder farmers, individual farmers	non-subsidised	private company
Indonesia	Rice, maise, palm oil	Flood, drought, named pests and diseases, rainfall, windstorm	Smallholders, farmers groups, individual farmers	Subsidise and non-subsidised programs	Government and private companies
Lao PDR	-	-	-	-	-
Malaysia	-	-	-	-	-
Myanmar	paddy rice	weather-related disasters	paddy rice farmers		The government, in cooperation with international donors and private companies.
Philippines	Rice, maise, high-value crops	Natural calamities, pests and disease, other perils insured	Smallholder farmers, other stakeholders in the agriculture, fisheries and forestry sectors	Subsidised and non-subsidised	Government institutions (PCIC and others) and the private sector
Thailand	Rice	Flood, drought, frost, windstorm/ typhoon, fire, hail, pests and diseases, elephant damage	Rice and maise farmers	Subsidise	The government, in cooperation with private companies.
Singapore	-	-	-	-	-
Vietnam	Rice		farmers		The government, in cooperation with private companies.

Agricultural insurance is generally implemented in most ASEAN countries such as the Philippines, Thailand and Vietnam. Meanwhile, other ASEAN countries are steering towards employing the insurance. However, Malaysia is still at the stage of finalising the insurance policy. Table 5 demonstrates that most ASEAN countries applied both index and indemnity-based insurance. But for the time being, Malaysia has no stand-alone policy for crop insurance.

In Malaysia, agricultural insurance policies have been introduced some times, but never with much success. Private commercial insurance for cocoa, fruit, coconut oil palm, and rubber for plantation export crops has been limited since the 1980s. All these crops are insured to plantation or forestry fire policy and additional perils. Malaysia's general planting crop policy only focuses on a frequently known issues such as insurance for growing trees like palm oil and rubber. Two insurance companies offer large-scale plantation crop insurance, Syarikat Takaful Malaysia and Lonpac Insurance Berhad, but private insurance coverage is limited. The costly expenses of implementing crop insurance are why the government faces a delay in introducing crop insurance to the Malaysian farmer's community. There is no government support for agricultural insurance in Malaysia at present. However, the government extended assistance in crop compensation programmes during public disasters. Affected crops are rubber, oil palm, cocoa and coffee, and covered hazards include fire, flood, windstorm, animal damage (elephant) and insect damage (bagworms). The compensation schemes were compulsory for the settlers and participants in the Federal Land Development Authority (FELDA), Federal Land Consolidation and Rehabilitation Authority (FELCRA) and Rubber Industry Smallholders Development Authority (RISDA) programmes. The compensation funds were either financed directly by the government or rubber by a cess on grower's rubber exports and by the government. In line with the program's development and improvement, the government has increased the Agriculture and Agro-based Industry Ministry allocation from RM4.4 billion in 2019 to RM4.9 billion in 2020 to enhance farmers' income.

Hence, the government should consider crop insurance for big-holder farmers and focus on smallholder farmers. Agricultural insurance should be desirable to protect smallholding farmers and must be a cost-effective scheme for smallholder farmers. Crop microtakaful is highly recommended as one of the stand-alone policies for smallholder farmers. The proposed scheme is in line with National Agrofood Policy (2011-2020), highlighting food security, ensuring its availability, affordability and accessibility, competitiveness and sustainability of the industry, and increased farmers' income level. Crop microtakaful also plays a vital role in reducing the global food system's vulnerability to acute food shocks, contributing to resilience and sustainability. Thus, this study was conducted to know smallholder farmers' readiness to contribute to crop microtakaful scheme.

Crop microtakaful has gained popularity as a means of mitigating risks and enhancing the livelihoods of smallholder farmers. However, little is known about the readiness of smallholder farmers to participate in crop microtakaful schemes. According to a study by Abdul-Rahaman & Owusu-Sekyere (2017), smallholder farmers in Ghana showed a positive attitude towards crop microtakaful but lacked the necessary knowledge and financial literacy to participate in the scheme. Similarly, in a study conducted by Zerssa et al. (2021), farmers showed interest in crop microtakaful but were hesitant due to the lack of trust in the insurance providers and their limited understanding of the scheme. In contrast, a study by Teshome et al. (2021) found that smallholder farmers in Ethiopia were ready to participate in crop microtakaful schemes, and their willingness was influenced by factors such as the perceived benefits of the scheme, trust in the insurance providers, and the simplicity of the scheme. Another study by Muriuki et al. (2021) in Kenya showed that smallholder farmers were willing to participate in crop microtakaful but faced challenges such as lack of awareness of the scheme, mistrust in the insurance providers, and limited financial resources to pay for the premiums (Garba et al., 2022). In conclusion, crop microtakaful has the potential to provide smallholder farmers in developing countries with affordable and

accessible insurance coverage for crop losses. However, the success of crop microtakaful schemes depends on smallholder farmers' readiness to participate and contribute. Therefore, it is important to understand the factors that influence smallholder farmers' readiness to contribute to crop microtakaful schemes and develop strategies to address these factors.

CONCLUSION

This study's primary purpose is to identify smallholder farmers' readiness to participate in the Crop MicroTakaful Scheme. The result indicated that smallholder farmers were ready and willing to contribute to the CMTS. Developing countries, such as Malaysia. The government generally provides takaful schemes to its citizens, especially those from low and middle-income backgrounds. The formation of the CMTS is expected to assist policymakers in demonstrating their commitment to improving the welfare of the poor and those in informal sectors. CMTS provides financial mechanisms for protecting and promoting a good income protection plan by ensuring that middle and low-income citizens have access to income protection. This showed the potential of CMTS could not be denied since there is a vast market for such a scheme. It will also reduce the dependency on government aid and open a new market horizon in risk management. The government should take this opportunity to develop the CMTS framework, which contains four main attributes; 1) types of crops to be insured, 2) type of coverage, 3) contribution or the price, 4) and sum assured/benefit. The framework should include coverage for natural disasters, pest and crop diseases with the ultimate objective to reduce the vulnerability of the global food system. Another consideration is the techniques cover parametric that are best applied for emergency cash relief, which is immediately paid out when traditional insurance is not accessible or affordable and complements traditional insurance. This scheme is increasingly accepted by the industry, governments, and end-users. Finally, the country's economy will flourish with a healthy and well-earning society. Hence, this study can reduce the community's dependence on the government with stakeholders' involvement in contributing a certain sum as part of their corporate social responsibility initiative.

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