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Opportunities and Challenges in Exporting Malaysian Sweet Potato: A Case Study

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Abstract

This study was carried out to assess the opportunities and challenges in exporting Malaysian sweet potatoes. This study utilized a qualitative approach through case study method using purposive sampling on Malaysian exporters. Huge opportunities revealed for the Malaysian sweet potatoes exported which are increasing 62 percent in export quantity from the previous years, increasing in per capita consumption, and perceived health benefits were the underpinning factors leading to the increasing trend in Malaysian sweet potato export. However, results indicate that insufficient domestic supply, inconsistencies in qualities, and fulfilling the importers' country's sweet potato preference were the main challenges in exporting Malaysian sweet potatoes. Nevertheless, the Malaysian sweet potato industry will be excellent in the long term due to the great opportunities and potential expansion arising.

Introduction

Malaysian sweet potato had been given attention by the government since the 11th Malaysia Plan (MP), National Agrofood Policy, and NAP 2.0 through the development of potential crops which lead to the potential value-added product for the market expansion towards reducing Malaysian imports. In Malaysia, paddy, fruits, vegetables, cash crop, herbs and spices, industrial crops, and flowers are major agro-food commodity that plays an important role in contributing significantly to the Malaysian production of major agro-food commodities. Malaysian sweet potatoes are included in the cash crop together with cassava, sweet corn, sugarcane, groundnuts, great yam, and others. According to Ministry of Agriculture and Food Industries (2019), cash crops are short-term crops normally less than one year other than vegetables such as sweet corn, sugarcane, yam, and others. Malaysian cash crop had contributed significantly to Malaysian agro-food commodity which is ranked 5th after paddy, fruits, vegetables, and industrial crops. Meanwhile, in cash crop production, sweet potato contributed 26% of its production and ranked 2nd after sweet corn (27%).

Sweet potato is the highest production compared to all tubers planted in Malaysia. In 2021, sweet potato recorded 58,714 Metric Tonne (MT), followed by cassava (40,714 MT), yam (3,547 MT), greater yam (*Dioscorea alata.*: 11 Mt) and native potato (*Coleus rotundifolius*.: 1 MT). Greater yam and native potato are a new list started in 2018 by the Department of

Agriculture. Malaysia's sweet potato shows an increasing trend over the years as well as productivity (Figure 1). The introduction of a high-yielding sweet potato variety is one of the factors that lead to the increasing trend in production and productivity. Malaysian Agriculture and Research Development Institute (MARDI) introduced the high-yielding sweet potato variety throughout the 11th MP such as VitAto which has a potential yield estimated 25 to 30 tan per hectare and can reach maximum potential of 40 MT per hectare.

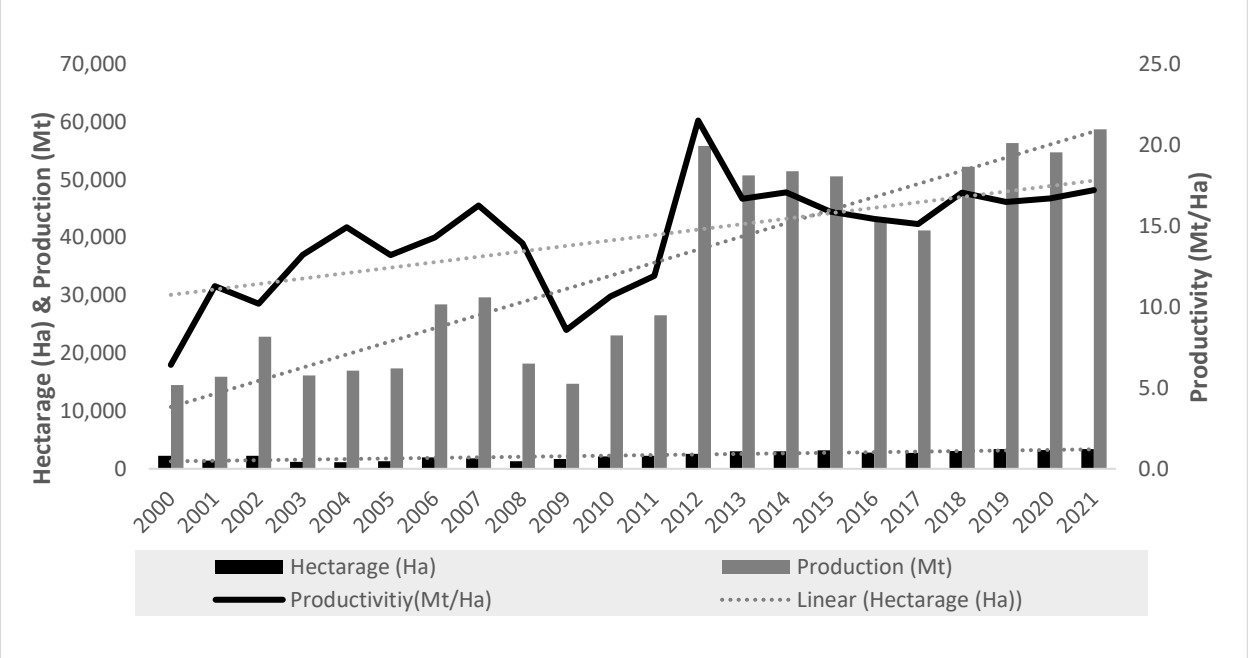


Figure 1. The trend of Malaysian sweet potato planted area, production, and productivity (Ministry of Agriculture and Food Industries, 2000-2021)

Since the Malaysian sweet potato had witnessed significant growth, this paper aims to assess the export potential as well as identify opportunities and challenges of exporting Malaysian sweet potato. These findings from this study will be useful as a guideline for policymakers to plan and strategize to remain competitive in the long term. Long-term initiatives give huge opportunities for Malaysians to penetrate new markets and consistently trade with other partners other than our traditional market.

Methodology

This study utilized secondary and primary data. The secondary data was obtained from International Trade Centre (ITC), Agrofood Statistic from the Ministry of Agriculture and Food Industries (MAFI), and Crop Statistics from the Department of Agriculture (DOA) for the sweet potato trade and production. Level of sufficiency, import dependency, and consumption per capita information gained from the Department of Statistics Malaysia (DOSM). The primary data was gained through semi-structured interviews with Malaysian sweet potato exporters (n=5) and farmers (n=12) using a case study approach. The list of the exporters obtained from the Federal Agricultural Marketing Authority (FAMA) and farmers from the Department of Agriculture based on the top three highest states of sweet potato production in Malaysia (Kinta, Bachok, and Sepang).

This study applied a case study approach to assess and investigate the contributing factors that influenced the export potential of sweet potatoes in Malaysia. According to Curry et al (2009), case studies involve the investigation of a specific unique system with pattern behavior, dynamic properties, and defined features. It is part of the qualitative approach which is often exploratory and seeks to generate novel insights (Patton, 2001; Crabtree, 1999; Pope & Mays, 1995) using inductive rather than deductive approaches. The secondary data had been analyzed using analysis trend, cumulative and average growth rate had been calculated (CAGR and AGR), and export market share. Meanwhile, data primer had been analyzed using Content Analysis for the objective of identifying the issues, challenges, and opportunities in exporting Malaysia's sweet potato.

Results and Discussions

Malaysian export trend (2016-2021)

As seen in Figure 2, Malaysia had recorded an increasing trend in exporting sweet potatoes starting in 2018. In 2021, Malaysia recorded the highest quantity export which is 2,282 Metric Tonne (MT) with a significant increase of 96.7 percent from 2016. Overall, Malaysia recorded a cumulative average growth rate (CAGR) of 15 percent. This tremendous increase shows the huge opportunities for Malaysian sweet potatoes in the future. According to Achterbosch et al (2014), cash crops have become an important contribution to food security, not only generating income but also for food production.

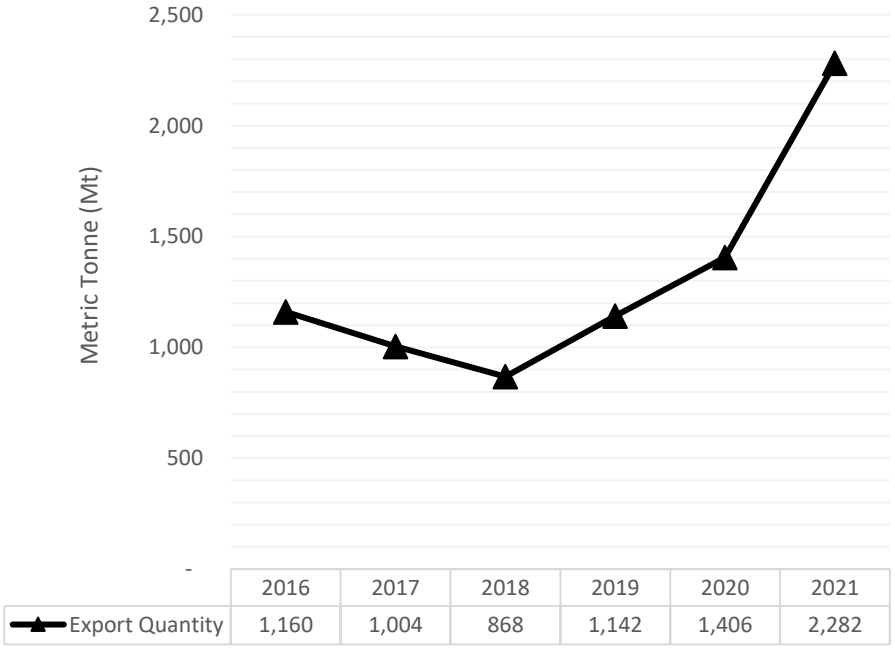


Figure 2. The trend of Malaysian sweet potato export (2016-2021)
(International Trade Centre, 2022).

Malaysian sweet potato export market share (2016-2021)

Table 1 depicts Malaysia's sweet potato export market share from 2016 until 2021. In general, Singapore is the major Malaysian export market share since 2016, and Singapore is regarded as our Malaysian traditional market. Malaysia is also exported from various countries such as Hong Kong, Qatar, United Arab Emirates, Vietnam, Brunei, and Cambodia. However, according to the exporters, these countries recorded inconsistent trade with Malaysia due to the insufficient/limited domestic sweet potatoes for exported purposes.

Table 1
Malaysia sweet potato export market share (2016-2021)

2016	2017	2018	2019	2020	2021
Singapore (95.5%)	Singapore (98.0%)	Singapore (91.0%)	Singapore (98.9%)	Singapore (98.0%)	Singapore (99.9%)
Brunei (2.5%)	Maldives (1.0%)	Hong Kong (9%)	Cambodia (0.44%)	United Arab Emirates (2%)	Brunei (0.1%)
Maldives (1.7%)	Brunei (0.7%)		Brunei (0.22%)		
Hong Kong (0.4%)	Qatar (0.5%)		Vietnam (0.22%)		

Source: International Trade Centre (2022)

Variety of Malaysian sweet potatoes for export

Malaysia exported sweet potatoes from the orange variety which mostly comes from Perak. Perak is the largest state (1,676.3 hectares) in Malaysia and contributed almost 60.3 percent of the sweet potato production in Malaysia. According to exporters, all Malaysian sweet potatoes for export come from Perak, Kinta's State. Kinta's State is the top sweet potato producer in Perak with recorded 28,540 MT in 2020. Table 2 illustrates sweet potato production in Malaysia.

Table 2
Sweet potato production in Malaysia (2020)

State	Harvested Area (Ha)	Production (Mt)
Perak	1,676.3	33,032.3
Kelantan	682.1	10,981.6
Selangor	243.6	3,733.8
Johor	203.0	3,503.9
Pahang	111.9	896.6
Terengganu	54.5	488.5
Melaka	24.4	239.6
Kedah	15.3	226.7
Pulau Pinang	2.4	45.6
Perlis	0.3	1.7
Negeri Sembilan	0.0	0.4

Source: Department of Statistics (2020)

Table 3 depicts the Malaysian sweet potato exporters' profile for the Singapore market (n=3) and Brunei market (n=1). Almost 90 percent of Malaysian export share is Singapore's market, therefore the variety of Malaysian sweet potatoes exported is orange variety and purple variety for Brunei's export market. All the export preparations are fresh and minimal processes for Singapore's export market with the quantity exported normally a minimum of 100 kilograms and a maximum of 250 kilograms and 500 kilograms to 1 ton for Brunei's export market. Export frequency is normally within 3 to 4 times a week using land route (Singapore) and boat (Brunei).

Table 3
Exporters Malaysian sweet potato profile

Items	Singapore (n=3)	Brunei (n=3)
Variety	• Orange	• Orange • Purple
Export preparation	• Fresh (Grade AA: > 800 gram) • Minimal Process (1 kilogram)	• Fresh (Grade AA, A & B)
Export Quantity	• Maximum (25 bag @ 250 kilogram) • Minimum (10 bags @ 100 kilogram)	• 500 kilograms to 1 ton
Export frequency	• 3 times/week	• 4 times/week
Logistic	• Land route	• Boat (45 minutes)/Land route (1 hour)

Source: Survey (2021)

Market preference for sweet potato in the Singapore market

According to International Trade Centre (2022), Japan recorded the highest import share (31.5%), followed by Vietnam (26.2%) and Indonesia (16.5%). Malaysia ranked 4th (9.4%) in Singapore's import market share in 2021. Japan, Vietnam, and Indonesia have similarities in their exported sweet potato which is sweeter varieties and are normally known as Japanese sweet potatoes. Malaysians currently exported orange varieties (Perak) which are less sweet but high demand is 200 kilograms in a form of minimal process (frozen) for household use, especially in the traditional local dishes in Singapore's market. The price is in the range of $1.50-$1.60 per kilogram (Picture 1). According to the exporters of Malaysian sweet potatoes minimally processed, the demand is higher and quite tough to fulfil the demand as the Malaysian sweet potato supplies is not consistent. The importers need almost 1 ton per month for household consumption in Singapore.

Picture 1: Malaysian Sweet Potatoes Minimally Process
Source: Survey (2020)

Besides that, other than minimal process, based on secondary data, it is obvious that the Singaporean market preferred sweeter types of sweet potatoes for fresh consumption which are normally known as such as Japanese sweet potatoes. Therefore, it is not surprising that Japanese sweet potatoes are mostly available and abundant which come from Japan, Vietnam dan Indonesia and are underpinned by the higher purchasing power of the Singaporeans. Malaysian exporters stated that if Malaysian succeeded in producing Japanese sweet potatoes or other sweeter varieties on a large scale, they are eager and ambitious to export as they believed sweeter varieties had a huge market to be exploited.

On the other side, our team revealed that some of the farmers have planted a year ago on Japanese sweet potatoes as a trial for commercial (Besut, Terengganu) and trial for planting purposes (Kinta State). For planting purposes, the farmers experimented with the types of soil planted and the fertilizer used. For the commercial trial, the farmers stated that the variety planted is the Japanese sweet potato variety. According to farmers, this variety can be considered a success in planting because it yields is more than the local varieties, 6 to 10 tan per acres compared to the local varieties which are 5 to 8 tan per acres. The farmers also revealed that these types of sweet potatoes are mostly highly demanded from the industries because of the smooth texture as it reduced the probability of the machine being damaged as well as saved the raw materials such as sugar as it has the level of sweetness required.

Besides, this sweet potato had penetrated the market in Selayang (40 percent), Melaka, Kedah, and Perlis at 20 percent each.
However, this type of sweet potato is still new, and not all states in Malaysia can produce it. Currently, it had been planted in Terengganu such as Besut, and Setiu which it lands suitable for planting. It would be a great opportunity if Malaysia's able to export which also leads to additional income for the farmers as well as increase Malaysian self-sufficiency in sweet potatoes. Currently, Malaysia's self-sufficiency average is at 80% (Department of Statistics Malaysia, 2022).

Market preference for sweet potato in Brunei market

Figures 3 and 4 show Malaysia's trade and positions among its competitors in the Brunei market. It is obvious showed Malaysia recorded the highest exporting into Brunei's market in 2021 followed by Australia and Vietnam. The same source also stated that Malaysia recorded the highest import share in Brunei's market for sweet potato at 46.3 percent, followed by Australia (35%) and Vietnam (10.4%) (International Trade Centre, 2022). One of the exporters revealed that Brunei preferred to import from Malaysia due to its logistics and halal factors compared to the other countries. Brunei accepted all the Malaysian sweet potato grades starting from Grade AA, A, and B. All sweet potato exporters are in fresh commodities and not in a minimal process form. Types of varieties Brunei imported are oranges and purple varieties. Based on the interviews, the exporters need more land for planting as Brunei needs an average of 100 to 200 tons of sweet potatoes in a month. Currently, the supplies were at 500 kilograms to 1 ton per month as the farm is limited to 5 to 10 acres.

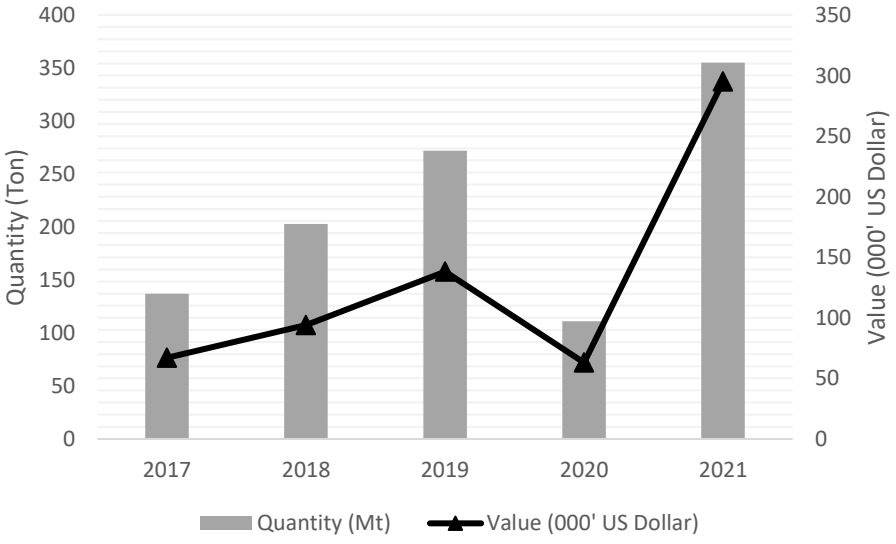
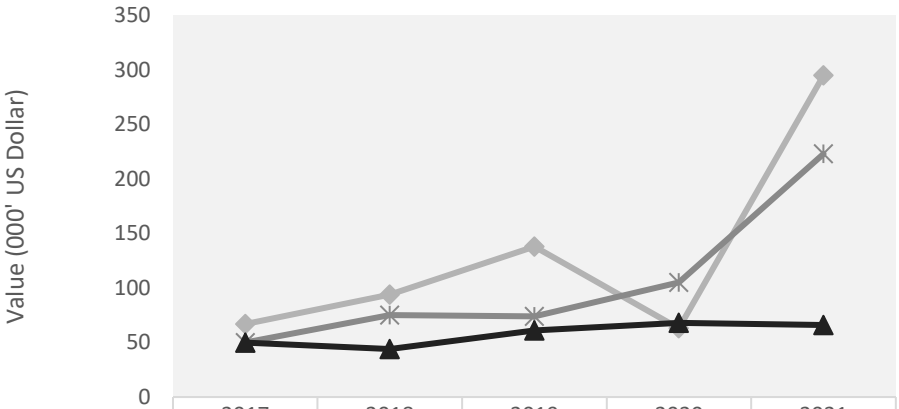


Figure 3. Malaysia's Trade of Sweet Potato in Brunei's Market (2017-2021) (International Trade Centre, 2022).



	2017	2018	2019	2020	2021
Malaysia	67	94	138	63	295
Australia	50	75	74	105	223
Viet Nam	50	44	61	68	66

Figure 4. Malaysia's position in Brunei's sweet potato market (2017-2021) (International Trade Centre, 2022).

Others Market Potential for Sweet Potato

According to International Trade Centre (2022), as depicted in Figures 3 and 4, Malaysian sweet potato export potential had been predicted in 2026 based on three selected parameters which are supply, demand, and ease of trade. The supplied parameter is based on projected market share, demand based on projected import, and ease of trade based on a ratio of actual trade between exporter and market with potential relative to the trade if the exporter has the same share in world markets. In United Arab Emirates (UAE), Malaysia is predicted recorded 9th ranked among the United Arab Emirates' export potential for sweet potatoes (Figure 3).

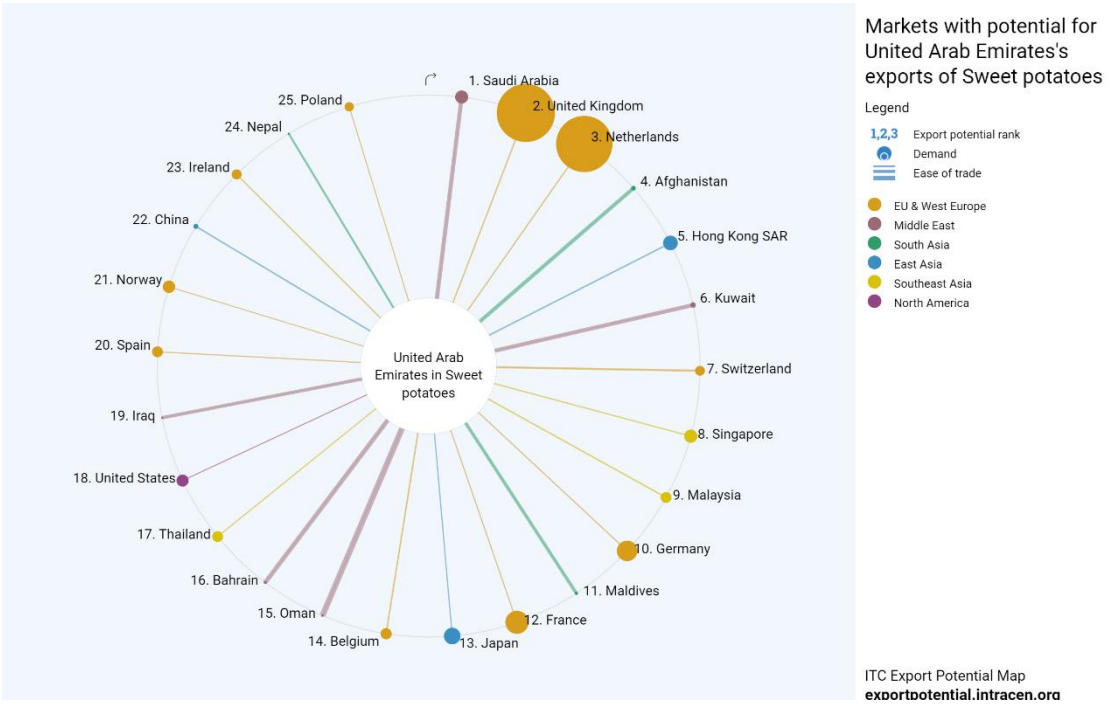


Figure 3. Malaysia Ranked 9th for Market Potential in United Arab Emirates Market (2022)

(International Trade Centre, 2022).
Figure 4 shows Malaysian sweet potato export potential predicted in 2026 based on three selected parameters which are supply, demand, and ease of trade. The supplied parameter is based on projected market share, demand based on projected import, and ease of trade based on a ratio of actual trade between exporter and market with potential relative to the trade if the exporter has the same share in world markets.

Issues, challenges, and opportunities in exporting Malaysian sweet potatoes
Table 4 illustrates issues, challenges, and opportunities in exporting Malaysian sweet potatoes. All the information was gained from interviews with Malaysian sweet potato exporters using Content Analysis. Respondents' quotations had been coded based on the issues, challenges, or opportunities arisen as depicted in Table 4.

Table 4
Issues, challenges, and opportunities in exporting Malaysian sweet potatoes

Respondent	Quote	Description	Code
R1	*"Malaysian sweet potatoes always insufficient in supplies. Sometimes shortage occurred".*	Malaysian sweet potato insufficient supplies	Issue
R2	*"Sweet potatoes after harvest sometimes looks good and sometimes not too good, and depends on the weather too. 2 weeks good and another 2 weeks not in good condition".*	Sweet potatoes ununiformed in quality after harvesting	Issue
R3	*"Need a more planted area for sweet potatoes to meet the continuously higher demand".*	Need more planted area	Issue
R4	*"Sweet potato minimally processes recorded higher demands from Singapore market".*	High demand from Singapore market for sweet potato minimally process	Opportunity
R5	*"Interested exporting more sweeter types of sweet potatoes such as Japanese Sweet Potatoes because the market is huge".*	Producing a sweet variety of Malaysia sweet potato for export market expansion	Opportunity
R6	*"Brunei's market preferred imported from Malaysia other than countries such as*	Prefer imported from Malaysia as Malaysians have an extra advantage	Opportunity

	Australia and Vietnam due to confidence on Malaysian handling towards 'halal' along the supply chain as well as nearby (logistics)".	which is *'halal'* throughout the supply chain as well as logistics factors (nearby).	

Source: Survey (2021)

Issues and Challenges

a) Insufficient domestic supply of sweet potatoes
b) All exporters deal with the same problems. There are circumstances where supply is limited and demand from importing countries cannot be met. According to the Department of Statistics (2022), average Malaysia's sweet potato self-sufficiency rate is 80 percent, which is still insufficient for domestic consumption, and Malaysia need to import sweet potatoes from Vietnam, Indonesia, and Thailand.
c) Inconsistency in sweet potato quality
The inconsistency in sweet potato quality arose in the export of Malaysian sweet potatoes. Exporters said this could be due to planting factors, post-harvest management, agronomic practices, as well as external factors like the weather.

Opportunities

a) High demand for minimally processed sweet potatoes
Minimally processed sweet potatoes are in high demand in the Singapore market, especially for cooking in their traditional dishes. These minimally processed sweet potatoes are frozen and typically keep for a week or two. According to exporters, these sweet potato varieties usually weigh more than 800 grams (AA grade), which is easy to cut. These minimally processed varieties come from Perak orange varieties. On the other hand, there is also another sweet potato called VitAto, which is mainly grown in the eastern part of Malaysia, especially in Kelantan. These varieties are also sweeter and are in high demand by the food industry, especially traditional cake producers. Almost 4 tons per week or 16 tons per month is demanded because VitAto can save the cost of raw materials (sugar) since it is already sweeter.

b) Export market expansion with a focus on developing sweeter sweet potato varieties
Importing countries like Singapore imported sweeter sweet potatoes from Japan, Vietnam, and Indonesia. These three countries produce sweeter sweet potatoes for example Japanese sweet potato from Japan and Vietnam, and *Cilembu* from Indonesia. All these imported sweet potatoes are available in the Malaysian market and sold in the range of RM 7 to RM 8 per kilogram (wholesale market) and sold in premium supermarkets at a premium price.

c) More planted areas to meet the growing demand for sweet potato exports
Exporters in Sabah revealed that the existing farm (10 acres) could not accommodate the growing demand for sweet potatoes. It is estimated that between 50 and 100 acres are needed to meet the monthly needs of the importer countries such as Brunei. Besides, exporters also stated that Brunei preferred to import from Malaysia due to confidence in halal channels along the value chain as well as logistic factors (nearby).

Conclusion

In a conclusion, Malaysia has a vast potential for exporting sweet potatoes in the long term, especially in the minimally processed which are highly demanded in our traditional market. the identified issues and challenges such as inconsistent domestic supply, inconsistent sweet potato qualities, and fulfilling the importers' market preferences need to be strategized thoroughly to remain competitive in the long term.

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