



Received: 27-01-2023
Accepted: 07-03-2023

International Journal of Advanced Multidisciplinary Research and Studies

ISSN: 2583-049X

Channels of Distribution in Malaysian Organic Durian: Case Study Approach

¹ Suhana Safari, ² Nur Azlin Razali, ³ Theeba Manickam, ⁴ Haryati Mansor, ⁵ Rozita Yusof

^{1,5} Socioeconomic, Market Intelligence and Agribusiness Research Centre, Malaysian Agricultural Research and Development Institute, Malaysia

² Horticulture Research Centre, Malaysian Agricultural Research and Development Institute, Malaysia

^{3,4} Soil Science, Water and Fertilize Research Centre, Malaysian Agricultural Research and Development Institute, Malaysia

Corresponding Author: **Suhana Safari**

Abstract

Durian consumption is centred on the Asian market given the dominating growth of the commodity in the region. Due to the consistent and substantial demand for durians yearly, the use of excessive and non-permitted pesticides in farming practices and artificial chemical ripening agents to promote maturity for doubling up the yield has become a major concern in food safety. Over the long term, extensive and indiscriminate use could negatively affect both environment and human health. The National Agricultural Policies (NAPs) in Malaysia (NAP-1 and NAP-2) emphasise organic agriculture, which is considered safe for human consumption and protects the environment. Malaysian Agriculture Research and Development Institute (MARDI) has been entrusted to develop a durian cultivation package using organic farming practices, as one of the high-value tropical fruit commodities. Therefore, this case study analyses the market information and its distribution and identifies issues and challenges mainly in the production and marketing aspects. Data were collected using an in-depth

interview involving major industry players (i.e., farmers, wholesalers, and retailers). Currently, only six farms are classified as organic and certified through the myOrganic certificate in 2021 with the majority of organic durian farms being micro-to-small-scale. All data were analysed using content analysis. The majority of the marketing chain of organic durian in Malaysia involves a less-complex chain, so-called Zero-Level or Direct channel (production-to-final consumption), and only a respondent applied One-Level marketing channels (Production to retailing to final consumption). Organic durian is segmented as a premium and niche market as product attributes are claimed to be safer and entitled to offer higher market prices than non-organic. However, the organic durian market remains extremely limited compared to organic vegetables. This study provides preliminary supply chain information to be used as a basis for further research on organic durian targeting the export market.

Keywords: Marketing, Malaysian Tropical Supply Chain, High-Value Crop, Organic Fruit, Organic Durian

Introduction

Durian consumption is centred on the Asian market as the commodity has dominated the region's growth. With its distinctively strong smell and sharp thorns on its shell, durian popularity and demand have skyrocketed. In 2021, durian export by country data depicted Thailand as the largest exporter with 81.3%, followed by Hong Kong, China (which is believed to be next exported into mainland China) (15.4%), Vietnam (2.5%) and Malaysia (0.7%). Despite export, demand for imported durian positively increased with the majority market to China (97%; annual growth 2016-2020; 55%), including Hong Kong. Since durian is targeted to be a high-potential commodity in the future, a study from the marketing perspective is important relative to organic durian, which is very new to the market. There is no doubt that the durian trade has increased significantly among producing countries, and durian is grown conventionally using chemical inputs (fertilizers and pesticides). Thus, given the global concern about pollution and the impacts of the COVID-19 pandemic, organic produce is becoming more relevant to consumers.

Singapore Food Agency (2021) voiced its concern about using excessive and non-permitted pesticides in farming for better yield and artificial chemical ripening agents to promote maturity in durian fruits exported to Singapore. In 2019, Thailand was also issued a warning letter from Japan due to the high pesticide residue in durian shipments (Karnjana, 2019) [16]. Besides, in another case in the same year, a thorough analysis by Thailand Pesticide Network (Thai-Pan) also found that 41% of 15 popular vegetables and nine fruits contained toxic chemical residue above the safe level. As Thailand is a big player in the

global durian industry, Malaysian farmers may also equally overuse chemicals if strict control and approaches are lacking for the substitute organic products, which are safer for human consumption.

Chemical fertilizers, pesticides and fungicides are widely used in agriculture to improve crop yields. The substances are synthetic and they may cause environmental pollution and human health problems when overused (Duran-Lara *et al.*, 2020)^[9]. Several studies found that the use of chemicals did increase crop productivity, however extensive and indiscriminate use over the long term led to adverse impacts on environmental and human health (Chang *et al.*, 2021^[8]; Leong, *et al.*, 2017; Kamaruzaman *et al.*, 2020^[15]). In a worse situation, humans can be affected through contact with the skin, ingestion, or inhalation, thereby leading to poor health statuses such as nutritional deficiencies and healthy/damaged skin (Nicolopoulou *et al.*, 2016)^[28]. Therefore, MARDI has been responsible for the development of a durian organic farming technology package, covering the entire value chain aspects from cultivation management (agronomy, fertilizer, pest and disease), post-harvest handling, economics and marketing. Nevertheless, this study focuses on marketing aspects to obtain market information along the supply chain and distribution. This study also attempts to identify issues and challenges, mainly in the production and marketing aspects.

Literature Review

a) Organics supply chains and distribution channels

The agriculture supply chain has been described widely by scholars as a supply chain where an agricultural product goes through different stages of production and distribution before reaching the final consumers. (Safari *et al.*, 2021; Aramyan, 2007; Bijman, 2002)^[32, 4, 6]. The interconnected business process is involved directly or indirectly in all phases of satisfying the consumer's needs, consisting of producers, suppliers, distributors, transporter, warehouse, various types of intermediaries and customers (Tundys & Rzeczycki, 2015)^[38]. In a broader sense, the supply chain includes new product development, marketing, operations, distribution, finance, and customer service (Food and Agriculture Organisation [FAO], 2007)^[10]. While the distribution channel is the process flow from producers to end users through a series of marketing entities, and it depends on the number involved.

The supply chain of organic products is often considered an alternative supply chain, which is shorter, more locally oriented, and more tightly connected to producers and consumers than conventional food supply chains (Kottila *et al.*, 2005)^[19]. Tundys & Rzeczycki (2015)^[38] demonstrated a clear difference in the construction supply chain for conventional and organic products, whereby the latter relies on the nature of the products, biodiversity, ecological process, and natural cycles. The organic supply chain assessment comprises three pillars of sustainability dimensions – environmental, economic and social (Zira *et al.*, 2021)^[44]. In conjunction with the essence of safety and a sustainable environment, the organic supply chain seems most related to the green supply chain. It is also identified as a mitigation strategy to reduce global warming (Muller & Schader, 2009) and considering all elements with environmental risks and impacts (Zhu & Sarkis, 2004)^[45]. Studies across different products and plants identified organic production had benefited stakeholders in the supply

chain compared to conventional products. Organic production offers lower expenses for farm inputs, healthier soils, diverse source of income and higher prices (Alanzi, 2018)^[2], more resource-efficient (Zira *et al.*, 2021)^[44], reduce the environmental effect (Longo *et al.*, 2017)^[22], and producing lower carbon dioxide emissions (Brodt *et al.*, 2013)^[7]. Despite having good impacts, organic production also faces challenges of the time-intensive process, higher cost, insufficient suitable land availability, and vulnerability to pest attacks. (Tundys and Rzeczycki, 2015)^[38] and lower production (Longo *et al.*, 2017)^[22]. The products must thus reach end consumers as a necessity to maintain their freshness and quality in high expectations.

b) Organic purchase consumption

Organic groceries consumption has been on the rise over recent years. Many countries have actively used and promoted organic technology to produce food. However, the overview landscape of organic consumption differs from one country to another. The growth of the organic food market has caused a significant change in food consumption patterns. This event began in 1989 in European countries, followed by North America and Japan (Nasir & Karakaya, 2014; Paul & Rana, 2012)^[5, 29]. Nevertheless, the high-consumption countries are still leading in European countries, such as Switzerland, Denmark, Sweden, the United Kingdom, and Germany, as well as the United States of America and the Asian region, Japan, China and Australia (World Atlas, 2023)^[41].

Globally, organic products have reached sales of US \$ 90 billion (2016) and are expected to reach US \$ 320.5 billion by 2025 (Jaffery & Annuar, 2023; Mustapha, 2018)^[26]. A few attributes have been highlighted to influence the willingness to consume organic products such as consumers with a high level of education (Nasir & Karakaya, 2014; Roitner-Schobesberger *et al.*, 2008; Zepeda & Li, 2007; Magnusson *et al.*, 2001)^[5, 30, 43, 24], female consumers (Urena *et al.*, 2008, Krystallis *et al.*, 2006; Lea and Worsley, 2005)^[39, 18, 20], and higher-income levels (Govindasamy & Italia, 1999; Magnusson *et al.*, 2001; Magnusson *et al.*, 2003)^[11, 24, 25]. Furthermore, organics products tend to be young buyers willing to pay higher premium prices (Ishak *et al.*, 2021; Nasir & Karakaya, 2014; Jolly, 1991)^[12, 5, 14].

While in Malaysia, organic sales value demand is increasing despite a limited local production supply. However, organic products are consistently imported, particularly from the US, Japan, Australia, New Zealand and China (Somasundram *et al.*, 2016)^[36]. As a result, the value of the organic food market increased by more than 100 % from RM 1 billion in 2001 to RM 12 billion in 2016 (Jaffery & Annuar, 2022^[13]; Willer & Lernoud, 2018), and it is expected to increase annually by 12.4% until 2030. Although organic food is more expensive in Malaysia, Abdullah *et al.* (2022)^[1] found that 56% of consumers who earn more than RM 2,501 per month are willing to change their food choice preference to a healthier lifestyle and may buy some effort to buy organic products.

c) Organic durian

The global durian fruit market is expected to grow by 7.1% (US\$ 36.4 billion) in 2028, with Asia Pacific representing 92.3% of the worldwide durian market, predominantly driven by Chinese demand (Zanariyah, 2022)^[42]. Undeniably, the organic market for fruits and vegetables is

estimated to rise with a CAGR of 11.7% or US\$ 55.86 billion by 2027 (Allied Market Research, 2020) [3]. Furthermore, the organic consumer population positively increases as they are concerned with antioxidants and overall health as evident in several scientific studies. The increase in lifestyle and healthy diet practices, especially for the younger generation living in cities, depicts that organic production is expected to increase by 12.4% annually (Song and Kanesh, 2020) [37]. Socioeconomic factors of consumers with a fixed income and purchasing power will influence the acceptance and purchase of organic consistently (Liuqing *et. al.*, 2017) [21].

Looking at China's primary market, organic durian is not impossible to export penetration. In addition, Malaysia has gained several market accesses for durian to China in frozen forms pulp, paste and whole fruit. Notwithstanding, an effective marketing strategy is essential. Millennials are primarily relying on the Internet for information, while current, catchy, and exciting store website and social media platform is required to market the products. The marketing strategies for natural and organic are constantly changing, but the most important element is fitted to consumer-base. In durian organic, it may not be much different from conventional marketing, but testimonials of taste and health effects can be used as the main reason. Malaysia has the advantage of its famous Musang King or Mao Shan Wang clone. Apart from prioritising the export strategy, the proposal of durian tourism is also suggested for Malaysian farms that have received organic certification or My Organic. This strategy will lead to a long-term investment portfolio, capturing long-term economic returns with the offered eco-tourism package.

Research Method

This study applied a case study approach using in-depth interviews involving major industry players in organic durian (i.e., farmers, wholesalers and retailers). The data were collected from 1st August 2021 to 25 October 2021 and the participants were obtained from the latest list (2021) of my Organic certificate farms from Malaysia's Department of Agriculture. About 89 organic farmers for vegetables and fruits have a planting area of more than 531.46 hectares. Of the 89 organic farmers, only 20.2% or 18 farms are involved fruit production. Meanwhile, for organic durian farms, only six farms are accredited and were selected as primary respondents in this study. The purposive sampling technique was used for other respondent groups (wholesalers and retailers), and direct information from the farmers. Nevertheless, only one respondent was involved because most farmers sell their fruits directly to consumers. Case study approaches are widely used in qualitative research, quantifying, and analysing the presence, meanings and relationships of particular words, themes or concepts. The data on the supply chain, issues, and challenges along the supply chain, including production and marketing of durian organic, were then analysed using Content Analysis and ATLAS.ti 7 software.

Result and Discussion

Durian organic cultivation in Malaysia

In Malaysia, the local organic food industry is still small, as more than 60% of organic food products are imported. Most of the organic products are sold domestically, while some are exported to Singapore (Somasundram *et. al.*, 2016) [36].

The Ministry of Agriculture and Food Industry has always encouraged farmers to engage in organic farming in Malaysia. Organic farming focuses more on vegetable cultivation (93%), and only 3% is involved in organic fruit cultivation. Through the recycling concept, organic agriculture is planted with mixed crops between vegetables and fruits. The idea of mixed farming is not only for the biological management of disease and pests but also to increase soil fertility and maximise production. The area of organic as a whole is led by Sabah (42.53%), followed by Perak (18.62%), Johor (14.73%), Kedah (8.04%), and Pahang (6.17%) while other states contributed less than 5%. The latest record by the Department of Agriculture revealed that only 89 farmers with an area of 531.46 hectares continued and validated until 2021. Out of 89 farms, only 18 (20.2%, with an area of 127.9 hectares) produce fruits, including durian, jackfruit, rambutan, banana, papaya and coconut. These crops are either the main or border crop, depending on the needs of the farmers. For organic durian, 15.4% or 19.76 hectares are planted, involving six (6) farms in Malaysia (Table 1). Organic Durians are currently cultivated in Johor (4.5 hectares), Sabah (3.9 hectares), Perak (3.1 hectares), Penang (2.9 hectares), Kedah (2.7 hectares) and Negeri Sembilan (2.6 hectares).

Table 1: Organic Durian Farms certified myOrganic by states and planted area (2021)

Crop	State	Planted Area (Hectares)
Durian	Johor	4.50
	Sabah	3.90
	Perak	3.15
	Pulau Pinang	2.93
	Kedah	2.71
	Negeri Sembilan	2.57
	Total	19.76

Source: Department of Agriculture Malaysia, 2021

Table 2 presents organic durian information based on the farmer's interviews. The planting area of organic durian is operated on a small scale and is not commercial. These involved farms operated by family and maintained as family heritage (more than 20-30 years of production). Some farms are trying to apply agrotourism elements. The common durian varieties include Musang King, D24, Duri Hitam and IOI. Organic plant growth is slow but suitable for plants without using chemicals that can damage the environment and health. Thus, the yield of organic durian trees is less than non-organic. For example, non-organic durian plants normally produce 100-150 fruits (1.5-2.0 Kg/fruit or 225 Kg/plant/season), whereas lower quantity ranging from 70-80 fruits are produced by organic durian plants (1.5 – 1.8 Kg/fruit or 144 Kg/plant/season). The efficiency of durian farms in production has been studied by Krasachat (2014) [17] in Thailand farms. The authors identified three factors relating to inefficiency: technical management in farming practices- lack of education and variability of fertilizer types, the application of organic farm systems and soil improvement practices, and the inefficiency of durian size. From a pricing aspect, organic durian price is higher with an increment to 30-35% or RM 10-20/Kg. For example, the retail price of organic Musang King is RM 50-RM 60/Kg compared to non-organic at RM 35-40/Kg. Malaysian organic price of any products is well known to be more expensive than other countries- by as much as 100% to

300%, compared to only a 25% to 30% price gap in the US and European Union (EU) (Somasundram *et al.*, 2016) [36]. However, in the case of durian, it is rarely found and at low perception among Malaysian. Therefore, the wholesale price of organic and non-organic durians becomes indistinguishable; hence both durians are offered at the same wholesale price. With no difference between organic or non-organic durians at the wholesale level, organic durian marketing remains unclear and segmented as a premium market with the upper market price unlike organic vegetables. Organic durian is currently unavailable at hypermarkets, supermarkets or roadside stalls - consumers willing to buy need to reserve through online or phone pre-order.

Eating durian might cause stomach discomfort, gas,

diarrhoea, vomiting or allergic reactions in some people (RxList, 2021) [31]. From the feedback of experienced users of durian organic, consumers make repeat purchases due to its effect, which agrees that organic durian had no side effects such as stomach upset or high body temperature. However, there is insufficient evidence to confirm this claim except refereeing to the healthcare professional. Additionally, some consumers agreed that organic durian has a balance between bitterness and sweetness (less bitter and sweet). This mild taste may be good for people who dislike the strong flavour of durian. On the other hand, the responses were from a few persons and are not representative of all consumers. A comprehensive consumer study would yield different results.

Table 2: Current Status of organic durian farms in Malaysia

Parameter	Description	Status
Planted area	2-5 hectare/farmer	Small-scale farms: family/hobby or agrotourism farm
Variety and age of a tree	Holo, Anghe, Kampung, IOI, D24, Musang King (MK), Black Thorn	Old plants and maintained for ecological balance (20-30 years). Latest clone: MK and Black Thorn (5-6 years old)
Production	MK Organic: 70-80 fruit/tree/cycle MK Non-organic: 130-150 fruit/tree/cycle	Organic yield is lower
Price	Ex-farm MK Organic: RM 50-RM 60/ Kg MK Non-organic: RM 35-40 /Kg Retail MK Organic: RM 60-70/ Kg MK Non-organic: RM 40-50 /Kg	- A gap in retail price between organic and non-organic: RM 10-20 / Kg (direct-selling) - There is no different price if selling at the commercial wholesale place. Organic fruit will sell at the same price as non-organic.
Market	Unavailable at retail markets-hypermarket and supermarket	Pre-order basis either online or by phone
Consumer acceptance	<ul style="list-style-type: none"> Organic durian has a balanced taste between bitterness and sweetness. Stomach and body temperature tolerable 	

Source: Field study (2022)

Durian Organic Supply Chain in Malaysia

The complexity of the supply chain involves few elements 1) various companies, 2) has a high number and variety of reactions, processes and interactions between and within companies, 3) processes and interactions are dynamic, 4) many levels of the system involved in each process and 5) the large amount of information needed to control the system (Serdarasan and Tanyas, 2012) [33]. Sivadasan *et al.* (1999) [34]; Sivadasan *et al.* 2002a [35] in their study agreed that 69% of complex structure in supply chain causes problems such as lower performance, higher costs, and lower profits. The organic durian supply chain is less complex than non-organic durians, which at the moment involves two marketing channels. 1) Zero-level channel or Direct channel (from the farm directly to final consumer); and 2) One-level marketing channel (from farm to retailer to final consumer) (Fig 1 and 2). In the Zero-level channel, booking is made using a pre-order basis through online platforms such as social media (example: Facebook and Instagram), private webs and group bookings (using WhatsApp). The delivery will be made directly by farmers to ensure quality and freshness. From the aspect of user groups, two main groups are either repeat users (regular customers) or new ones interested in organic produce.

While in the One-level channel, organic durian is sold from the farm to retailers and final consumers through physical stores. The pre-order from customers is needed to obtain orders through retailers. The two main groups of consumers are identified - regular customers and new customers who

are interested in trying organic durians. As consequences, complexity reduction helps organizations focus on business benefits, consumer value and eliminate unnecessary activities, expenses and potentially even products. This is supported by Serdarasan and Tanyas (2012) [33] whereby majority of the companies indicated that they take action to manage or reduce the complexity for business expansion.

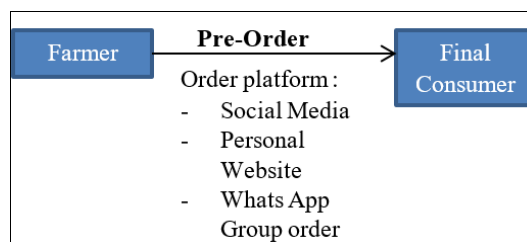


Fig 1: Zero-level channel for Organic Durian

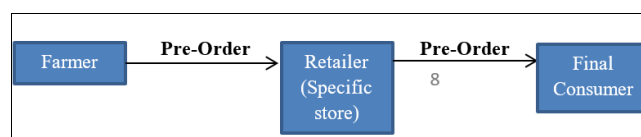


Fig 2: One-level channel for Organic Durian

Issue and Challenges

Since organic durian in Malaysian can be said to be very new in the market, there are several issues and challenges to be faced as follows:

Low production and small-scale farming

A study by Krasachat (2014)^[17] on organic durian farms in Thailand found that the efficiency of organic durian farms is highly dependent on technical expertise and optimal farming scale. Those factors could reduce it by 48% of farm production. While in Malaysia, organic durian farms are also in small scale size and unable to produce fruits commercially. Therefore, it makes production limited and unable to grow economically. Moreover, organic farm cultivation requires a long period of planning. Hence, it is an undoubtful plan as a long-term investment and is expected as good economic return in future. The cultivation of durian requires a long period and commercial scale.

Limited market place

Less complexity of the organic durian supply chain resulted in a niche market. However, in the sense of creating a different market, it also makes a limited market. This is because the supply chain does not involve many industry players (wholesalers, distributors and retailers); the marketing is straightly at zero and one-level distribution channel. To make this industry attractive, thus the involvement of industry players needs to be more active so that consumers obtain more information and promotions.

Pest and disease

Apart from that, the issue of disease and pest attacks is the most challenging issue since no chemical use is permitted except by using biological or organic control. The most acute disease is stem cancer caused by the insect (*Phytophthora palmivora*). The disease will damage the branches and roots. Therefore, continuous research studies should be made to ensure that there is applicable organic pest control to overcome this issue from time to time.

Differences in taste and nutrients

Scientifically, there is no significant difference between organic and non-organic products regarding taste. However, this is backed by many experienced consumers which consumed for long time. The acceptance of taste attributes is complex among consumers. The justification of non-organic side effects cannot be proven and tends to be influenced by other factors. However, it is well known that organic is safer and healthier. Thus, apart from validating myOrganic, effective marketing strategies and consumers' awareness are important to enhance in this industry.

Conclusion

Market information and supply chain of durian organic under the package of Tropical fruits cultivation carried out by MARDI has been carried out under technical and economic research activity. Durian has been chosen due to its high demand and potential in the domestic and export markets. The study found that the organic durian industry in Malaysia is very new, produced by small-scale farms under the myOrganic scheme. Only 20.2% (or 18 farms) are involved in organic fruit cultivation; out of these, only six (6) farms grow durian. Technically, organic production is lower than non-organic but safer for the environment and consumer health. To balance the production costs and farmers' income, the price of organic should be higher. Yet, Malaysian organic durian, specifically Musang King clone only a bit higher at RM 10-15 than the non-organic. This portrait of organic durian marketing remains unclear, unlike organic vegetables, segmented as a premium market with

the upper market price. Consumers' feedback on taste and health benefits makes it more acceptable to encourage them to repeat purchases for the next season.

In terms of supply chain structure, organic durian only involves two channels: a Zero-level channel or Direct Channel (from farm to consumer); and a One-level channel (from farm to retailer to consumer). The potential of organic durian is a promising future for consumers' demand in creating a high-value product for domestic and export markets, especially to Asian and preferably to China markets. Understanding the supply chain and integrating the packaging technology is expected to overcome the issue and challenges, mainly production and pest and disease attacks. Thus, it is expected to increase farm production efficiency with commercial farm planning in the future.

References

1. Abdullah FA, Saidi SFS, Bakar TA, Young LJ. The Level of Buying Behaviour towards Organic Food among Malays Consumers. In IOP Conference Series: Earth and Environmental Science. IOP Publishing. 2022; 1102(1):012051.
2. Alanzi S. Pestle analysis introduction. Managing People in Projects, Cover Page, 2018.
3. Allied Market Research. Organic fruits and vegetables market, December 2020. <https://www.alliedmarketresearch.com/organic-fruits-and-vegetables-market>
4. Aramyan LH. Measuring supply chain performance in the agri-food sector (Doctoral thesis, Wageningen University, Netherlands), 2007. Retrived from <http://library.wur.nl/WebQuery/wurpubs/fulltext/121904>
5. Aslihan Nasir V, Karakaya F. Consumer segments in organic foods market. Journal of consumer marketing. 2014; 31(4):263-277.
6. Bijman J. Essays on Agricultural Cooperatives. Governance Structure in Fruit and Vegetable Chains (Doctoral thesis, Erasmus University, Rotterdam, 2002.
7. Brodt S, Kramer KJ, Kendall A, Feenstra G. Comparing environmental impacts of regional and national-scale food supply chains: A case study of processed tomatoes. Food Policy. 2013; 42:106-114.
8. Chang YY, Tan J, Tan JL. Knowledge and Attitude of Malaysian Fruit Growers on Integrated Pest Management (IPM). ASM Science Journal. 2021; 16:1-13. Doi: <https://doi.org/10.32802/asmscj.2021.804>
9. Duran-Lara EF, Valderrama A, Marican A. Natural organic compounds for application in organic farming. Agriculture. 2020; 10(2):41. Doi: <https://doi.org/10.3390/agriculture10020041>
10. Food and Agriculture Organization. Agroindustrial supply chain management: concepts and application: Agricultural management, marketing and finance occasional paper, 2007. Retrived from <http://www.fao.org/3/a-a1369e.pdf>
11. Govindasamy R, Italia J. Predicting willingness-to-pay a premium for organically grown fresh produce. Journal of Food Distribution Research. 1999; 30(2): 44-53.
12. Ishak LN, Fuza ZI, Othman MA, Abas SA. Customers Awareness and Purchase Behaviour towards Organic Food. International Journal of Academic Research in Business and Social Sciences. 2021; 11(16):130-139.
13. Jaffery NSN, Annuar SNS. Malaysia Consumers Green

- Purchasing Behaviour towards Organic Products: A Review. In International Conference on Communication, Language, Education and Social Sciences (CLESS 2022), 2022, 205-212. Atlantis Press.
14. Jolly D. Differences between buyers and non-buyers of organic produce and willingness to pay organic price premium. *Journal of Agribusiness*. 1991; 9, 97-111.
 15. Kamaruzaman NA, Leong YH, Jaafar MH, Khan HRM, Rani NAA, Razali MF, *et al.* Epidemiology and risk factors of pesticide poisoning in Malaysia: Aretrospective analysis by the National Poison Centre (NPC) from 2006 to 2015', *BMJ Open*. 2020; 10(6):1-9.
 16. Karnjana K. Shocking use of pesticides continues, July 2019. <https://www.bangkokpost.com/opinion/opinion/1716599/shocking-use-of-pesticides-continues>
 17. Krasachat W. Technical efficiency of organic durian farms in Thailand. *Economic and Social Development: Book of Proceedings*, 2014, 247.
 18. Krytallis A, Fotopoulos C, Zotos Y. Organic consumers' profile and their willingness to pay (WTP) for selected organic food products in Greece. *Journal of International Consumer Marketing*. 2006; 19(1):81-106.
 19. Kottila MR, Maijala A, Rönni P. The organic food supply chain in relation to information management and the interaction between actors. *ISOFAR*, 2005. <https://orgprints.org/4402/>
 20. Lea E, Worsley T. Australians' organic food beliefs, demographics and values. *British Food Journal*. 2005; 107(11):855-869.
 21. Liuqing Y, Yongmei L, Xuhua W. Influence of online product presentation on consumer's trust in organic food: A mediated moderation model. *British Food Journal*. 2017; 119(12):2724-2739.
 22. Longo S, Mistretta M, Guarino F, Cellura M. Life Cycle Assessment of organic and conventional apple supply chains in the North of Italy. *Journal of Cleaner Production*. 2017; 140:654-663.
 23. Leong KH, Tan LB, Mustafa AM. Contamination levels of selected organochlorine and organophosphatepesticides in the Selangor River, Malaysia between 2002 and 2003. *Chemosphere*. 2007; 66(6):1153-1159.
 24. Magnusson MK, Arvola A, Koivisto Hursti UK, Aberg L, Sjoden PO. Attitudes towards organic foods among Swedish consumers, *British Food Journal*. 2001; 103(3):209-226.
 25. Magnusson MK, Arvola A, Koivisto Hursti UK, Aberg L, Sjoden PO. Choice of organic foods is related to perceived consequences for human health and to environmentally friendly behaviour. *Appetite*. 2003; 40(2):109-117.
 26. Mustapha K. Degrees of meaning in 'healthy food'. *New Straits Times*, 2018. Retrived from <https://www.nst.com.my>
 27. Muller A, Schader C. Efficiency, sufficiency, and consistency for sustainable healthy food. *The Lancet Planetary Health*. 2017; 1:13-14.
 28. Nicolopoulou-Stamati P, Maipas S, Kotampasi C, Stamatis P, Hens L. Chemical pesticides and human health: The urgent need for a new concept in agriculture. *Frontiers in public health*. 2016; 4:148.
 29. Paul J, Rana J. Consumer behavior and purchase intention for organic food. *Journal of Consumer Marketing*. 2012; 29(6):412-422.
 30. Roitner-Schobesberger B, Darnhofer I, Somsook S, Vogl CR. Consumer perceptions of organic foods in Bangkok, Thailand. *Food Policy*. 2008; 33(2):112-121.
 31. RxList. Durian, 2021. Retrived from: <https://www.rxlist.com/durian/supplements.htm>
 32. Safari S, Razali NA, Ibrahim WMW, Rahim MSA. From farm to China: A case study of Malaysian frozen whole durian export supply chain. *Economic and Technology Management Review*. 2021; 16:1-20.
 33. Serdarasan S, Tanyas M. Dealing with complexity in the supply chain: The effect of supply chain management initiatives, 2012. Doi: 10.2139/ssrn.2056331
 34. Sivadasan S, Efstathiou J, Shirazi R, Alves J, Frizelle G, Calinescu A. Information complexity as a determining factor in the evolution of supply chain. *Proceedings of the International Workshop on Emergent Synthesis*, Kobe, Japan, 1999, 237-242.
 35. Sivadasan S, Efstathiou J, Frizelle G, Shirazi R, Calinescu A. An information-theoretic methodology for measuring the operational complexity of supplier-customer systems. *International Journal of Operations and Production Management*. 2002a; 22(1):80-102.
 36. Somasundram C, Razali Z, Santhirasegaram V. A review on organic food production in Malaysia. *Horticulturae*. 2016; 2(3):12.
 37. Song BL, Kanesh G. Consumer's knowledge, perceived quality, trust of the My Organic logo, and purchase behavior towards organic food in Malaysia. *Malaysian Journal of Consumer and Family Economics*. 2020; 25(2):1-16.
 38. Tundys B, Rzeczycki A. Construction of green supply chain for organic products. *Operations and Supply Chain Management: An International Journal*. 2015; 8(1):37-47.
 39. Urena F, Bernabeu R, Olmeda M. Women, men and organic food: differences in their attitudes and willingness to pay: A Spanish case study. *International Journal of Consumer Studies*. 2008; 32(1):18-26.
 40. Willer H, Lernoud J, Kilcher L. The world of organic agriculture. *Statistics and Emerging Trends*, 2016, 17.
 41. World Atlas, 2023. <https://www.worldatlas.com/articles/countries-buying-the-most-organic-groceries.html>
 42. Zanariyah A. Global Durian Market Analysis: Global Outlook 2020-2028. [Paper presentation]. Webinar: Musang King, Selangor, Malaysia, 2022, May 25.
 43. Zepeda L, Li J. Characteristics of organic food shoppers. *Journal of Agricultural and Applied Economics*. 2007; 39(1):17-28.
 44. Zira S, Rydhmer L, Ivarsson E, Hoffmann R, Rööös E. A life cycle sustainability assessment of organic and conventional pork supply chains in Sweden. *Sustainable Production and Consumption*. 2021; 28:21-38.
 45. Zhu Q, Sarkis J. Relationships between operational practices and performance among early adopters of green supply chain management practices in Chinese manufacturing enterprises. *Journal of Operations Management*. 2004; 22(3):265-289. Doi: <https://doi.org/10.1016/j.jom.2004.01.005>