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Foreword by the Director-General of FAMA

The publication of the inaugural issue of the Journal of Agribusiness Marketing is an important milestone in the continuing efforts of the Federal Agricultural Marketing Authority (FAMA) to improve the marketing system for agricultural produce. This journal was motivated in part by the absence of journals in Malaysia which are dedicated to intellectual discourse on marketing in the agribusiness sector, and thus this journal fills a vacuum that has long existed.

The importance of adequate information flows in agribusiness marketing is underlined by the need to continually manage supply to match demand so that price fluctuations are minimised, particularly to the producers. If prices and market information are not transmitted quickly and efficiently to all relevant parties, asymmetric price transmission may result at certain market levels. In addition, localised shortages and gluts may occur frequently. Market information is thus crucial to encourage market efficiency. The availability of price and other market information helps to reduce inherent risks and transaction costs in agricultural production. Towards this end, this journal provides an important avenue to disseminate market information and research findings on agribusiness marketing.

Ensuring that the marketing system is competitive and efficient has always been among FAMA's priorities. This is in recognition of the fact that a well-functioning marketing system is important to remove hindrances to the further development of the agricultural sector. In view of the importance of the agribusiness sector to the local population and its role as a foreign exchange earner, it is timely to have a journal that provides a platform to exchange views and experiences both on the local front and internationally on pertinent issues that affect the industry and to keep abreast of the latest developments.

In addition, periodic supply shortages and surpluses are quite common occurrences in the agribusiness sector and these could pose food security problems. Such market imperfections should be minimised and this journal provides an opportunity to publish research findings that could provide valuable insights into the functioning of markets and assist in the formulation of appropriate measures to ensure the continued growth of the sector.

FAMA welcomes contributions of articles from individuals and organisations, whether domestic or international, to ensure the sustainability of this journal. The journal will be published annually in December and articles both in English and Bahasa Malaysia will be considered. Articles submitted should have relevance to agribusiness and agricultural marketing, including supply and demand analysis, price analysis, distribution system, supply chain management,

logistics, grading, quality management, agricultural and food trade, food safety and marketing policies.

I would like to take this opportunity to acknowledge the assistance of various individuals and institutions, without whose contributions this journal would not have been possible in the present form. My heartfelt thanks go to the staff of Universiti Putra Malaysia and Universiti Kebangsaan Malaysia who were instrumental in the initial conceptualisation of the form and substance of this journal. I also wish to express gratitude to all the Associate Editors from local institutions of higher learning, including Universiti Sains Malaysia, Universiti Malaya, Universiti Putra Malaysia, Universiti Kebangsaan Malaysia and Universiti Teknologi MARA, and external reviewers from FAO and AFMA, who have so generously contributed their valuable time and effort to ensure a high quality publication. Last, but not least, I would like to record my appreciation to the members of the Editorial Board who have worked very hard to ensure the realisation of a vision to have a journal published by FAMA.

Dato' Mohamed Shariff Abdul Aziz.

Editorial

The Journal of Agribusiness Marketing is a publication of the Federal Agricultural Marketing Authority (FAMA) of Malaysia which aims to provide a forum for scholarly works in agribusiness and agricultural marketing relevant to Malaysia, the ASEAN region and the rest of the world.

All manuscripts received are subjected to the double-blind review process prior to publication. Each submission is initially reviewed by the Chief Editor and, if judged suitable for this publication, it is then sent to a minimum of two referees for double blind peer review. Based on the referees' recommendations, the paper is either accepted as is, returned to authors for revision together with comments from the review, or rejected. The double-blind review process ensures that the requirement of objectivity is fulfilled.

Currently, the Journal of Agribusiness Marketing has thirteen Associate Editors on its editorial board who review manuscripts prior to publication. The journal welcomes contributions from staff of local and international institutions or organisations who are specialists in their respective fields related to agribusiness marketing to join our editorial board as reviewers.

The inaugural issue of the Journal of Agribusiness Marketing presents four articles which discuss various issues related to marketing of fresh produce. Norjaya, Suhaimi, Norzalita and Ahmad in their paper entitled **"Exploratory Study In Assessing The Market Potential And Distribution Network Of Selected Tropical Fruits In Europe"** assess the market potential of tropical fruits in the European market. Among the aspects covered in this exploratory study were the distribution network and the competitiveness of Malaysian tropical fruits. The study found that there is considerable potential for Malaysian tropical fruits, especially carambola, pomelo and dragon fruit. It was, however, recommended that these fruits should be marketed in the niche premium market. European consumers have high disposable incomes and are developing a taste for healthy and natural products, thereby providing opportunities for Malaysian producers and exporters.

In their paper entitled **"Exploring Market Potential of Malaysian Tropical Fruits in Japan: Assessment of Market Accessibility and Consumers' Acceptance"** Faridah, Rosidah, Jamaliah and Jamaluddin note that there are prospects for improving Malaysia's share in the overall international tropical fruit trade. Demand for imported fruits continues to grow in Japan and exporting of fresh fruits to Japan presents opportunities for enterprising exporters. This exploratory research examined the legal regulations and administrative procedures of exporting fresh fruits into Japan and assessed the consumer preference for Malaysian fruits. The research revealed that the fruits which

have high consumer awareness and demand are pineapple, banana, red melon, yellow melon and mango. Among these fruits, mango was singled out as the most favoured and therefore, with the greatest market potential. Nevertheless, the study pointed out the stringent requirements for exporting fresh fruits to Japan. The critical issues have been quality and also the presence of fruit flies.

Bisant and Fatimah examine the performance of the broiler market in **"The Broiler Chicken Industry in Malaysia: Some Evidences on the Structure, Conduct and Performance"**. They note that the major structural changes that the industry has experienced have led to concerns over market concentration and the likely exercise of market power by wholesalers at the expense of producers and consumers. Their finding that the broiler market is oligopolistic in nature with a few large buyers exercising considerable power over the broiler marketing process underlines the importance of improving the market information dissemination system and improving transparency in the price determination process. Regional markets were, however, found to be well-integrated in the long-run with Kuala Lumpur as the dominant market and this is consistent with well-functioning commodity markets.

The final article, **"Distribution Channel of Tropical Fruits in the Netherlands Market"** by Tih, Azhar and Fauzi examines the tropical fruits market in Netherlands. Only selected tropical fruits are currently distributed and the main source of these fruits is the Asian countries. The entire distribution channel of tropical fruits in the Netherlands is complex. The findings of this research indicate that that in order to access high-end consumer segments via supermarket chains, the quality of tropical fruits is important. High standard compliance is required in order to penetrate this market segment. The alternative channels via retailers and traditional grocers are also available, but at a lower margin. The findings from this research can serve as useful guidelines for tropical fruit producers and exporters.

On behalf of the Editorial Board, I would like to thank the Director-General of FAMA for his support, encouragement and patience throughout the considerable time it took to finally see this journal in print. I would also to thank Prof. Dr. Fatimah Mohamed Arshad who patiently guided us from the inception of this journal through its various stages. Thanks are also due to the reviewers who tirelessly reviewed the manuscripts and the authors for their article contributions. I would also like to acknowledge the support we received from various individuals and institutions which made this publication possible.
Bisant Kaur (PhD)

JOURNAL OF AGRIBUSINESS MARKETING

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EXPLORATORY STUDY IN ASSESSING THE MARKET POTENTIAL AND DISTRIBUTION NETWORK OF SELECTED TROPICAL FRUITS IN EUROPE

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Abstract

This is an exploratory study that aims at assessing the market potential of selected tropical fruits in Europe. Specifically, this study attempts to identify the distribution network and to determine the competitiveness of Malaysian tropical fruits in the European market. Through purposive sampling, 100 interviews were conducted on the industry players comprising of importers, wholesalers, retailers and distributors in The Netherlands, which serves as a gateway to the European market. The study shows that the channel members include large-scale importers, wholesalers, and exporters, as well as large and small-scale retailers, who are the main players in fruits and vegetables distribution in The Netherlands as well as European markets. Results also indicate that there is a great potential for Malaysian tropical fruits particularly carambola, pomelo and dragon fruit due to low market competition. However, it is pertinent that these fruits be marketed in the premium market to reap premium earnings by supplying niche segments of the market. Although fruits such as pineapple, mango and papaya are highly demanded, competition is stiff. Despite low competition, durian, mangosteen, jackfruit and rambutan have less potential since market demand is low and the fruits are less attractive among the Europeans. Marketers of tropical fruits for European market should become more proactive in developing new fresh fruit products and build on the intrinsic strengths of fresh produce- namely freshness, associations with health, nutrition and light taste that is consistent with modern lifestyle.

Keywords: Market potential, industry survey, tropical fruits, distribution channel, European market

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1.0 Introduction

Global demand for fresh and processed fruits has been expanding over time as a result of increasing population, higher income, and technology breakthroughs that improve quality and lower prices, as well as the increasing preference for healthy food (Digal, 2005). The consumption of fresh fruits including tropical fruits among consumers in Europe is increasing because Europeans are not only interested in healthy eating but to some extent have a strong passion for exotic fruits. As such, between 1987 and 1992, there was a growth of exotic fruit imports into all EU markets (www.researchandmarkets.com). The largest market for exotics and off-season products in the EU is the UK followed by France and Germany. In The Netherlands, most of the imported tropical fruits are re-exported to other European countries.

The increasing demand for fresh fruits in Europe has brought in many producers and exporters of tropical fruits from Asian countries to penetrate the European market. Therefore, the market for tropical fruits in the European countries is very competitive with the involvement of several tropical fruits producers such as China, Thailand, The Philippines and South America. However, the demand prospects for tropical fruits particularly for exotic fruits such as dragon fruit, pomelo, mangosteen and rambutan in the European market are favorable (Ahmad, Azhar et al., 2008 and Ahmad, Suhaimi et al., 2008). Clearly, there are opportunities to improve and develop the linkage between the exporting countries and importing countries so that participants in the supply chain of tropical fruits may be able to tap the higher value chains and substantially improve quality, production capacity and ultimately enhance competitiveness (Digal, 2005).

Market penetration and expansion of tropical fruits is very much dependent on the overall integrated marketing system and supply chain management. For the whole system to function accordingly, several mechanisms have to be established including the market channeling system and quality control. Understanding the demand structure and the mode of entry would be crucial in penetrating the European market. One of the immediate issues that require more attention is the understanding of foreign market channel and industry characteristics especially in the country that serves as a market gateway such as The Netherlands. With its comprehensive logistic management and channel distribution, The Netherlands is a significant gateway to the European markets. Thus, an in-depth understanding of the characteristics of the channel members and its operation of fruits distribution would definitely pave the way to gain better access to the European markets. This research project aims at assessing the market potential of selected tropical fruits in The Netherlands. The findings of this research would certainly help in formulating a strategic action plan to enhance Malaysian exports of tropical fruits.

1.1 Objectives of the Study

This research focuses on achieving the following objectives:

- To identify the distribution network for tropical fruits in The Netherlands, the gateway to European market.
- To determine the competitiveness of Malaysian tropical fruits in the European market.

2.0 Understanding and Analysing the European Tropical Fruit Market

The market for fruits in Europe can be segmented according to two types – temperate and tropical fruits. The largest market by value is fresh temperate fruit. The major temperate fruits are oranges, other citrus, apples and grapes. In the tropical fruit market the major products are bananas, pineapples, and mangoes. The market for fresh temperate and tropical fruits is growing rapidly driven by consumers' interest in healthy eating throughout the year. Generally, there is a year-round demand for tropical and "exotic" fruits such as banana, pineapple, mango, papaya, avocado, pomelo, carambola etc. One of the main problems that Malaysian tropical fruits exporters can expect to face in the European tropical fruits market, is that there are already large numbers of suppliers who have successfully penetrated that market. Countries such as Brazil, Mexico, Costa Rica, Thailand and China dominate the market for major tropical fruits.

2.1 Import Demand of Tropical Fruits

Demand prospects for fresh tropical fruits over the current decade are expected to be favourable with the forecast growth rate at nearly 8% over the projection period for major tropical fruits (www.researchandmarkets.com). Global imports are forecasted to reach 4.3 million tonnes by 2010 with 87% or 3.8 million tonnes destined for developed country markets. The EU is expected to remain the world's largest import market, followed by the United States, together accounting for 70% of import demand. Europe is expected to remain the main market outlet for tropical fruit, with France a major importer and Netherlands the major European transshipment point for imported tropical fruit (FAO Corporate Document Repository, www.fao.org/docrep).

Forecasts for 2010 indicate increased import volumes for all four major tropical fruits (pineapple, mango, avocado, papaya), with the largest percent increase forecast for mango at 9.7% (www.researchandmarkets.com).The United States, the EU, Japan, Canada and China (Hong Kong SAR) remain the largest import markets for fresh tropical fruit. World trade should continue to be dominated by pineapples, although significant growth in exports has been recorded for other tropical fruits, particularly mango.

According to The United Nations' Food and Agriculture Organization (FAO, www.fao.org), the world production of and demand for tropical fruits are expected to expand over the next decade. In terms of production, developing countries are the major producers accounting for about 98% of total production. In terms of demand, 80% of world tropical fruits import comes from developed countries. Global fresh tropical fruit production's main focus is on four major fruits: mango, pineapple, papaya and avocado. These four major fruits account for about 75% of total global fresh tropical fruit production. The projection and demand forecast is based on the data available on these four major fruits. It is estimated that the other 25% production of total world tropical fruits consists of varieties of fruits such as lychee, durian, rambutan, guava, passionfruit and several other seasonal fruits. However, the trading volumes of these minor tropical fruits are smaller and mostly at the regional level. Furthermore, the international trade classifications do not provide sufficient data and details for these minor tropical fruits. Thus, specific projection for each type of tropical fruits is not available. Nevertheless, it is estimated that the market shares of these minor tropical fruits have been expanding in recent years.
The changing attitude of European consumers towards healthy eating provides great potential for the Malaysian fruit exporters to penetrate further into the European market. To market tropical fruits effectively, target marketing including appropriate market segmentation and positioning is vital. It is important to identify the key industry players in Europe in order to channel the exports and foster better farming practices to better match the timing of the demand. Apart from that, it is also important for the Malaysian fruit growers and exporters to be able to conform to the European fruits standards such as GLOBALGAP, HACCP and so on.

To effectively market the tropical fruits in the European market it is important to understand and analyse the needs and preferences of the consumers. According to Hughes (1996), there is a changing attitude towards healthy eating lifestyle due to increasing percentage of adult obesity. There is an increasing need for natural foods such as fresh fruits and vegetables and also organic foods. Some of the recent development in consumer lifestyle is that there is an increased of fruit consumption by 40 to 50%. In fact, children under 16 have begun to 'embrace' fresh produce. Besides, there is also an increase in consuming fruits for beauty purposes.

Besides consumers, understanding the distribution channel and supply chain is also very important for a successful penetration of the market. For Malaysian fruits to be marketed in the Europe, the members of distribution channels, the flow of distributing activities, the requirements in terms of laws and regulations, and the demand characteristics need to be studied. Since The Netherlands acts as a gateway to European Union countries, understanding the Dutch fruits distribution network is crucial.

3.0 Methodology

3.1 Data Collection

There are about 400 importers of fruits and vegetables in The Netherlands (Holland Fresh Guide 2005/2006). To determine a valid and meaningful findings a sample size of 100 industry players were interviewed through purposive sampling. The respondents were identified from the listing of fruits producers and exporters, which was obtained from the International Fruits Exhibition (Fruit Logistica 2007) in Berlin, Germany. Table 1 shows the composition of the sample respondents and the key information that were gathered from them.

Table 1 Research Sample and Key Information

Sample Group & Size	**Key Information**
Importers/Exporters/Distributors/ Wholesalers (n~47)	• Handling of tropical fruits • Type of tropical fruits • Sourcing of tropical fruits • Price indicators • Preference of tropical fruits • Distribution facilities • Volume estimation • Mode of payment • Handling of damage goods • Regulatory involved in tropical fruits distribution • Observation photos
Retailers (n~53)	• Different type of retailers • Type of tropical fruits distribution • Packaging and presentation of tropical fruits • Promotion activities • Estimation of pricing and volume • Observation photos

ndustry interviews were carried out among the Dutch importers/exporters, distributors, wholesalers and retailers to examine the characteristics of tropical fruits distribution activities and to determine the potential demand of the selected tropical fruits. As an effort to reach the target respondents, the researchers attended the fruits trade fair and exhibition known as Fruit Logistica which is an annual event held in Berlin. Fruit Logistica is the leading international

trade show in the fruit and vegetable sector and Germany provides an excellent stage to showcase the fresh produce since the European Union is the largest importer of fruit and vegetables in the world. The trade fair offered developing countries exhibitors of "exotic" produce as well as newcomers from the Central and Eastern Europe. It is an excellent venue to present their products to an international trade public and to establish new business contacts. Fruit and fresh produce industries were able to display their range of products and services to the industry players and trade visitors all over the world. Examples of innovative ideas for ensuring perfect quality throughout the processes and stages of the supply chain were also exhibited.

Data collection was carried out for the period of two months within the month of January to March 2007. During data collection, the dropping-off method was also used in order to generate more industry responses especially to capture the potential respondents that were unable to attend formal interviews. In addition, market observation was done to understand the daily function of tropical fruits distribution and market spread of tropical fruits within the local community. This holistic research approach generates more information that is useful to draw a complete framework of foreign channel distribution and fruit distribution network in The Netherlands market.

4.0 Findings and Discussion

4.1 Sample Characteristics

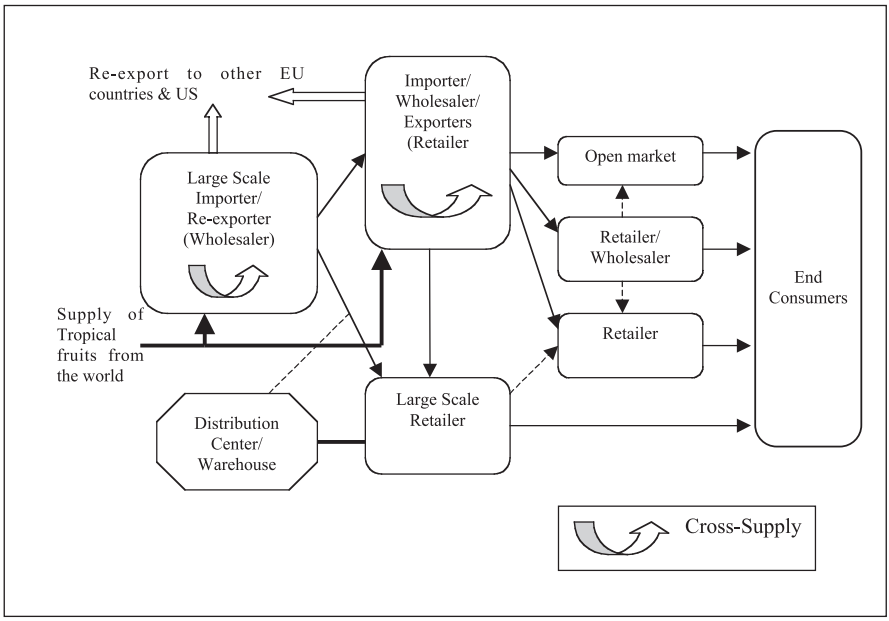
Table 2 shows the breakdown of the respondents. They supply to the local Dutch wholesalers and other European wholesalers that distribute the fruits through out European markets. Usually they do not deal directly with retailers except large scale retailer such as supermarket chains that order in bulk.

Table 2: Sample Category and Size (N = 100)

Sample Category	Sample Size
Large Scale Importer	11
Importer/Wholesaler	36
Large Scale Retailer	12
Retailer/ Small Retailer	37
Open Market	4

4.2 The European Market Distribution System

Figure 1: Overview of the Channel of Distribution



4.2.1 Importers and Wholesalers

In The Netherlands, the channel of distribution is well developed and connected. With reference to Figure 1, the channel members include large scale importers, wholesalers, and exporters. These channel members are the big players in fruits and vegetables distribution in The Netherlands as well as European markets. They usually hold multi-roles from importing fruits and vegetables from various parts of the world, sourcing from South America, Asia and also local suppliers to re-exporting to European countries and redistributing them throughout Holland. In their distribution network, they supply to other importers, wholesalers, exporters and sometimes retailers (especially large scale retailers like supermarket). In the supply network, the physical logistic is arranged via the retailer distribution centre or warehouse and then distribute to all subsidiary chain stores. These large scale channel members might also cross-supply for certain type of products. To supply to this group of importers, fruits product must possess a GLOBALGAP certificate, especially in 2008, where the GLOBALGAP requirement becomes necessary. Apart from that, the fruits must also comply with all EU

Regulation such as General Food Law that was enforced in January 2005 that involves regulation on Maximum Residue Limits (MRLs) for pesticides, and International Standard for Phytosanitary Measures (ISPM).

Figure 1 also shows the second level of importer/wholesaler and large scale retailers of tropical fruits. These groups of channel members supply fruits and vegetables to open market, retailer/wholesaler and retailers. The large scale retailers may supply to other smaller retailers or sell direct to the end consumers. Some of the large scale retailers have their chain stores throughout the European countries. Traditional retailers are usually privately owned mainly capturing the local Netherlands market by selling to neighborhood communities. In distributing the fruits, the wholesalers usually do not repack the fruits because the labor cost for re-packaging is extremely expensive. However, minor re-packaging is sometimes performed to meet their clients' requirements. Some customers require the packaging in the form of "ready-to-sell". Small mixed-packaged fruits are also provided for specific customers such as hospital fruit stores.

4.2.2 Large Scale Retailers: Supermarket Chains

One of the most important outlet that sells fruit and fresh produce to the customers is the supermarket. In The Netherlands, supermarket chains are very popular since they are found everywhere and offer better products at a competitive price. Besides Mediterranean fruits, tropical or "exotic" fruits are also popular items found on the supermarket shelves. Through observation, all the premises are equipped with cold rooms to store the fresh produce.

From experts' opinions and in reference to the GfK Consumentenpanel Netherland, Frugi Venta Annual Report of 2005 (report on consumer panel for fruit and vegetables purchases), it is clear that supermarket chains are the main distribution channels of fruit and vegetables. The total volume traded in 2005 is 3.7 billion (refer to Table 3). Of this, 2 billion euros' worth of fruits and vegetables are distributed through the supermarket chain (54%), followed by the daily or flea or open market (32.5%) and green grocers or fruit and vegetable shops (13.5%). Table 4 shows the increasing trend of the purchase volume of fresh vegetables and fruits. Therefore, to penetrate The Netherlands market, it is crucial to access the supermarket chains.

Table 3: The Value of Selected Market Segments in Year 2005

Market Segment	**Euro (in Billion)**	**Percentage (2005)***	**Percentage**
Supermarkets (5000 Outlets)	2	54%	65%
Daily/ Flea Market	1.2	32.5%	20%
GreenGrocer/Shops/Fruit/ Vegetable Stalls	0.5	13.5%	15%
TOTAL	3.7	100%	100%

**2005 percentage is calculated based on the three selected market segment volume*
Source: Adapted from GfK Consumentenpanel Nederland. Frugi Venta Annual Report 2005

Table 4: Share of Volume in Purchases of Vegetables and Fresh Fruits for Individual Sales Channels in the Netherlands

	Vegetables			**Fruit**		
	1999	**2002**	**2005**	**1999**	**2002**	**2005**
Supermarket	73%	77%	84%	63%	68%	75%
Greengrocer	11%	8%	5%	12%	9%	7%
Home delivery	1%	1%	1%	3%	2%	2%
Open market	11%	10%	6%	18%	16%	12%
Other	4%	4%	4%	4%	5%	4%
TOTAL	100%	100%	100%	100%	100%	100%

Source: GfK Consumentenpanel Nederland. Frugi Venta Annual Report 2005 page 10.

4.2.3 Small Retailers and Open Market

The small retailers in the form of mini market and grocery stores are scattered through out Holland. They serve the local communities by being at strategic locations and providing smaller quantities for household consumption. A typical mini market usually carries various consumable items such as canned foods, vegetables, fruits and dried foods. The retailers require fruit products that are packaged in a ready-to-sell form to avoid having to repackage the fruits themselves as labor is costly.

Open markets are traditional venue for selling dried and wet products. Open markets usually operate in the morning or evening on a regular basis. The products sold in open markets are of lower quality and

price and there is no need for GLOBALGAP certification for fruits to be sold here. Excess supply is usually distributed in the open markets with minimum pricing. Only few typical tropical fruits such as banana, pineapple, mango and papaya are commonly displayed and sold. Store owners usually get the supplies from local wholesalers and sell on cash basis. No specific packaging is required.

4.2.4 Consumers' Preferences

Apart from understanding the distribution network in Europe, and The Netherlands in particular, demand characteristics of the European consumer must also be understood. This understanding is crucial for exporters to customize their product to meet the buyers' demands and to beat the competition. Dutch consumers can be divided into several segments. The high-end segment that purchases fruits from supermarkets is more demanding. High-end consumers are more aware of the quality of the fruits and normally look for certification explaining how the fruits are grown. Therefore fruits with GLOBALGAP certification and GAP notices are most welcomed in this market segment. Meanwhile, traditional retail stores and open markets customers are less demanding in terms of certification. They may not be sensitive to voluntarily certification, but are more aware of brand names such as "Chiquita" bananas or "Del Monte" pineapples.

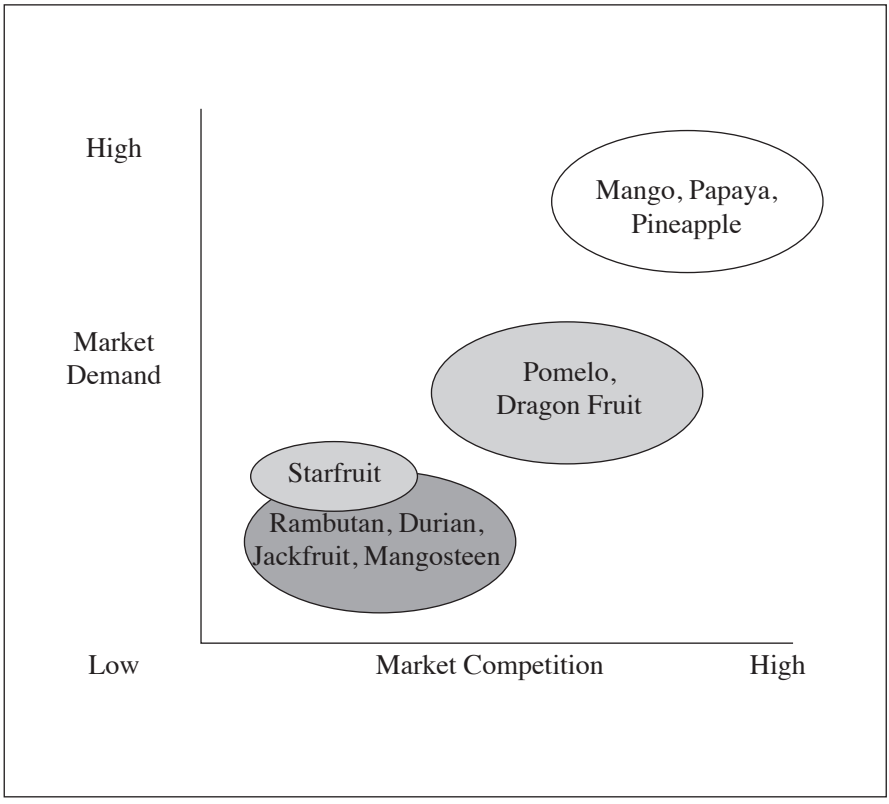
In general, there is an increasing awareness and demand for tropical fruits among European consumers due to the trend in healthy eating, increasing in income and promotion done by some retailers. The choice of fruits is much influenced by type, price and quality. As far as the type of fruit is concerned, the familiarity with and the appearance of the fruit are very important factors. Consumers prefer fruits that they are familiar with, and in terms of appearance, the colour, shape, freshness and texture of the fruit, these attributes are also important.

4.3 Malaysian Fruits Competitiveness in European Market

In order to identify the competitiveness of Malaysian fruits against other countries, a positioning mapping has been developed. Mapping is based on two elements: market competitiveness and market demand (refer to Figure 2). This is based on the primary data collected from the survey and market observation during the team visits to The Netherlands and Germany. Market competition refers to the degree of competition in the market. High degree of market competition means there are many suppliers in the market from different countries. Market demand means the quantity of demand from The Netherlands and European markets and the common consumption quantity concerning the retailers' opinion.

Figure 2 shows three clusters of different market positioning. The first cluster is mango, papaya and pineapple. These tropical fruits are commonly available in the market and come from various countries including South Africa and from Asia. Though the demand or quantity imported into The Netherlands and European market is high, the competitiveness level is also high. Moreover, due to the disadvantage in terms of distance, Malaysian papaya and pineapple prices are not competitive compared with the price of papaya and pineapple from those countries such as Brazil and Costa Rica. It was highlighted that the quality of Malaysian papaya is not attractive enough due to the nature of the fruit itself, that is, too hard when it is green and too soft when it is yellow (ripe). Therefore, in order to compete, Malaysian suppliers must improve on the quality of the fruits and reduce farming costs.

Figure 2: Positioning Map for Selected Tropical Fruits in European Market



Note:
Market Competition refers to number of competitors in market/intensity of competition
Market Demand is the estimated level of demand by importers. Positioning map is based on researchers' observation of the market and interviews with industry players.

The second cluster is pomelo and dragon fruit. Pomelo, for instance has its own strength such as longer shelf-life and its sweet taste. These qualities make the fruit become well accepted in the European market. The potential of this fruit, however, is much subjected to the timing of its arrival in the European market. Malaysian pomeloes should arrive in Europe prior to the month of June, i.e. before China's lower priced pomeloes flood the market. The Malaysian pomelo itself must also be adapted to suit the preference of local market by reducing the size, (half kg each) and being yellowish in colour. Meanwhile, the dragon fruit has a great potential to be exported to the European market due to the low market competitiveness. Other countries that have marketed dragon fruits to the European market are Vietnam and Thailand. However, European consumers are more aware of the Vietnamese dragon fruit as compared to the Malaysian variety. The white colour dragon fruits are more well-received than the red colour ones. Through aggressive promotion, the European consumer can be educated to understand the nutritional value of dragon fruits.

The third cluster is starfruit, rambutan, durian, jackfruit and mangosteen. This cluster is more on novelty purchase. These fruits are not commonly available in the market. The demand is seasonal, thus the market competitiveness is relatively low compared to other tropical fruits. Starfruits are highlighted because Malaysia is a leading supplier. In addition, the awareness of Malaysian brand starfruit is high. The majority of importers, wholesaler, traders and retailers mainly recognise starfruits from Malaysia and import them from Malaysia. Additionally Israeli and Taiwanese producers supply a small quantity of starfruits to Europe. A few retailers such as Albert Heijn also carries out promotional activities to support tropical fruits acceptance among European consumers. Despite low competition, durians and rambutans have less potential since market demand is low and the fruits are less attractive especially among the Europeans. At this moment, these two fruits are only sold through oriental supermarkets where the target market is more towards the Asians who live in Europe. The nature of durian for example is not suitable for the European consumers due to its strong smell.

Mangosteens and jackfruits have very low demand, but have strength in terms of life span as compared to other tropical fruits. Currently, the potential of these tropical fruits are low, but with proper promotion the market demand might increase. For instance, jackfruit is available all year round, thus with proper marketing strategies, this fruit can be further developed and marketed into the European market. In fact, some pre-packaged jackfruits are already available in the market and the taste of jackfruits is easily accepted by European consumers provided a fruit awareness campaign has been organized.

5.0 Strategic Implications

The Netherlands provides a good opportunity for Malaysian tropical fruit exporters to have access to the European countries. Distribution channel members in The Netherlands re-export mainly to Germany, France and UK; and all other EC countries as well as former EU. Specifically, Russian market also possesses high potential. In this case, Ukraine serves as a gateway to the Russian market. In order to penetrate the European market it is important to comply with several regulations such as GLOBALGAP, HACCP and regulations on packaging materials.

5.1 Proposed Specific Strategies for Selected Tropical Fruits

Fresh tropical fruits consist of an extremely varied number of products, which are known in the European market to various degrees. Products like pineapple and banana have gained a common place in the market, whereas others are much less known. Tropical fruits which are very little known in the European market are for instance, rambutan, durian, mangosteen, dragon fruit and pomelo. Although they are well known in the producing countries, they are not generally known to European consumers, and are therefore referred to as exotic tropical fruit. From the study, the consumers highlighted the frequent use of starfruit, dragon fruits and pineapple in food and table decoration to increase the value of meals for premium pricing. This is also due to the limited supplies, thus it creates the uniqueness of the fruits that is not common for daily consumption as compared to apples and oranges.

Malaysia is the main producer of star fruits in the European market. However, the volume of export is still relatively small. This is due to the low consumer awareness and consumption as a result of insufficient promotional activities. Star fruit is mainly used for decorative purposes rather than consumption. As such, there is a need for intensive promotional campaign and effective market positioning to generate higher demand among the European consumers. There should also be a concerted effort to maintain its strength especially the positive association of star fruit and Malaysia as the sourcing country. To increase consumption, there is a need to educate the consumers on the usage and nutritional value of the fruit. However, it is important to continue targeting the premium market and leverage the familiarity of the fruit to create a market niche among high-end consumers. In order to remain competitive it is very important to get the fruits to reach The Netherlands markets on time particularly during the festive months of December and January.

Jackfruit, mangosteen, durian, rambutan, pomelo, and dragon fruit are presently seen as “exotic” fruits and the level of awareness and knowledge of the fruits is still very low. Therefore, there is a need to increase the awareness and to

educate the consumers so as to convert the non-users to users. There is also a need to sell fruits like jackfruit, durian and pomelo that have been pre-packed in ready-to-eat form for ease of consumption. Mangosteen and rambutan can be freshly sold and also has the potential to be sold in canned or processed form due to its high perishability. As for mango, there is a need to concentrate investments in positioning the Malaysian mangoes for profitable segments, probably specialty stores, airlines, hotels, banquets as well as the high-end markets, by promoting Malaysian mangoes as tastier and tender. In terms of volume, Malaysian pineapple (Josephine variety) cannot compete with Dole or Del Monte, but has potential if positioned in the premium market in terms of sweetness in taste. Therefore, there is a need for appropriate positioning for specific buyer segments.

For Malaysian suppliers to be able to compete in the international market particularly exporting of tropical fruits to European countries, Malaysian suppliers must enhance its product quality and price competitiveness. Malaysian fruit growers and exporters should also invest in research and development to find ways to improve the quality and shelf life of the fruits. In addition, more promotional and marketing activities are needed, as a pulling effect, especially to the supermarket chain stores to attract end-consumers. Apart from promoting the fruits as ready-to-eat and as garnishments, new fruit consumption concepts should be introduced. These include using fruits as gifts, as an ingredient in making desserts and cakes and as punch drinks. Consistency in supply with significant quantity is crucial in order to attract big foreign buyers.

6.0 Conclusion

This is an exploratory study that aims at assessing the market potential of selected tropical fruits in The Netherlands. Interviews were conducted with industry players comprising importers, wholesalers, retailers and distributors. Results indicate that there is a great potential for Malaysian tropical fruits particularly carambola, pomelo and dragon fruit. Although fruits like pineapple, mango and papaya are highly demanded, competition is stiff. Consumers in developed countries in Europe have a high disposable income and are developing a taste for healthy and natural products. This provides many opportunities for Malaysian producers and exporters to penetrate the market and make premium earnings by supplying niche segments of the market. However, successful penetration can only be done through proper targeting and positioning. Fruit growers and exporters should implement quality control system together with sustainable farming and harvesting practices that would enable them to clearly position themselves as world class provider of tropical fruits, not only in terms of quality but also consistency and safety. Besides, it is very important that they establish a true point of difference in relation to other major fruit producers around

the world. This strategy calls for the market players to promote, showcase and market in a collective and consistent manner. This can be done through joint funding display space at tropical fruit shows, international advertising, distribution of glossy and informative brochures, etc. Apart from that, players in the tropical fruits industry should invest significant time and resources into researching the European market in order to gain new insights as to how Malaysian tropical fruits are valued and, more importantly, on how the fruits can be best presented for sale. It is very clear from the study that each of the key market segment presents their own set of issues and problems that must be understood and overcome if Malaysia is to successfully penetrate and increase exports. Malaysia fruit producers and exporters should also establish contacts and build good relationships with key buyers in order to explore value added opportunities.

7.0 Suggested Future Research

This study suggests that there is a great potential for tropical fruits in The Netherlands and European markets. However, the European consumers' perception and consumption of tropical fruits is yet to be fully understood. Thus, assessing the market potential and conducting a consumer awareness study is important to gather accurate information. On the other hand, knowledge of competitors' marketing practices especially close competitors' market activities are of importance in order to gain relative competitive advantage. Close competitors of Malaysian tropical fruits such as suppliers and industry players from Thailand and Indonesia must be closely observed to identify the differences and similarities in market offerings as well as their marketing practices in terms of packaging, branding, quality assurance, and pricing.

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Exploring Market Potential of Malaysian Tropical Fruits in Japan: Assessment of Market Accessibility and Consumers' Acceptance

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Abstract

Although the world market for tropical fruits is growing, Malaysia's share in the overall international fruit trade is relatively insignificant. It has been reported that the market demand for fresh tropical fruits in Japan is increasing, and hence, there are great prospects for the development of such fresh fruit market in Japan. Exporting fresh fruits to Japan is considered very challenging but presents an outstanding opportunity for enterprising exporters. Hence, it is timely for Malaysia to examine the export potential for its fresh tropical fruits to the Japanese market. This study explores the market potential for Malaysian fresh tropical fruits in Japan.

Specifically, the study aims to provide insight into the legal regulations and administrative procedures of exporting fresh fruits to Japan, to examine the distribution system for imported fresh fruits, to assess the awareness level, attitude, taste preference, and acceptance of Malaysian fruits among Japanese consumers, and to ascertain the potential supply of Malaysian fruits to Japan. Research methodologies adopted comprise personal interviews, customer surveys, field visits, analysis of official documents and accessing relevant websites to gather current and pertinent information. The study reveals that mango has the highest potential among the tropical fruits to be marketed in Japan. Recommendations proposed to facilitate Malaysia's entry into the fruit market in Japan include strategies related to production, logistics/ supply chain management, regulations and product.

Keywords: Export Marketing, Consumer Behaviour, Tropical Fruits, Malaysian Fruits, Japanese Consumers, Japanese Market, Mango, Market Accessibility

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Introduction

Malaysia is a producer of a wide range of tropical fruits such as pineapple, banana, mango, rambutan, durian, mangosteen, jackfruit and star fruit just to name a few. In the domestic market, the supply for these local fruits exceeds their demand especially during the fruit season. The market is saturated and farmers face stiff competition in selling their produce. As such, Malaysia should look to developing international markets for its tropical fruits.

One such promising market is Japan. It was reported that although the world market for tropical fruits is growing, Malaysia's share in the overall international fruit trade is relatively insignificant (Japanese External Trade Organisation, 2005). It has also been noted that there are interesting prospects for future development of the tropical fruit market in Japan where the variety of imported fruits and the consumption of new and foreign fruits are on the rise (Miyauchi & Perry, 1999).

Hence, it is timely for Malaysia to examine the export market potential for its fresh tropical fruits to the Japanese market. This effort to expand the market share for Malaysia's fruits in Japan is expected to contribute significantly to Malaysia's agricultural export earnings, in line with the country's objective of increasing its agricultural products export value to RM17.2 billion by the year 2010 (Federal Agricultural Marketing Authority, 2005).

Why Japan?

Japan's population of 127.77 million is considered wealthier and larger than those of other countries. In fact, Japan is the world's second largest market economy after the USA. Furthermore, it represents one of the most important markets for many fruit exporters around the world (Shim, et al., 2001). Being the world's biggest importer for primary produce such as rice, wheat, soybean, beef, fish, prawn, and animal feed (Miyauchi & Perry, 1999), its market for fresh fruit is relatively under developed. Furthermore, it was reported that the Japanese fruit growers supplied only 60 percent of the market demand (Japan Trade Directory, 2005). This offers a promising opportunity for foreign importers to penetrate the Japanese market.

The Japanese are very well known as a 'health conscious' society. In terms of its role in the Japanese diet, fruit is heavily consumed as a morning snack and after-meal dessert (Shim, et al., 2001). The older generation prefers fresh fruit but the younger generation prefers fruit juice and processed fruit, which is easy to eat. The Japanese are also very conscious of fruit quality; it is often noted that the Japanese 'eat with their eyes', that is, if a product does not look good, it

does not sell (Dyck & Ito, 2002). Moreover, they possess the economic power to demand and pay for premium quality (Kingdon, 1999).

Fresh fruit is not only an important part of the Japanese diet, but more importantly, fruit consumption is associated with social and cultural practices. For instance, fruit is considered a luxury item and plays an important part in Japan's extensive and elaborate gift-giving practices (Shim, et al., 2001). Indeed, fruit competes not with vegetables but with high-price gift items or sweets and snacks (Gehrt & Shim, 1998). With strong economic background, Japanese households' demand for other types of fresh fruit is steadily increasing. It should be noted that Japanese consumers in general are not price sensitive with regard to fresh fruit. Since placing importance on fruit is unique to the Japanese culture, quality, aesthetics and safety are more important than price.

Over 95 percent of the total import volume of fresh fruit to Japan comprises five types of fruits –pineapple, banana, lemon, orange and grapefruit - and the import volume of these fruits is declining (Japan Trade Directory, 2005). On the other hand, the variety of imported fruits and the consumption of new and foreign tropical fruits are increasing (Miyauchi & Perry, 1999). This reflects that the Japanese consumers desire new varieties or higher quality fruits in the fresh fruit category. In fact, Azuma and Fernie (2001) highlighted that Japanese consumers are characterised by their capricious and variety seeking behaviours and demand good quality and fresh products. Whilst some consumers in Japan looked for unique tropical and exotic foreign fruits such as mangoes, it was found that factors such as 'non availability' and 'lack of knowledge' deterred them from buying mangoes (Miyauchi & Perry, 1999). However, during the researchers' visit to Japan (in June 2007), they observed that mangoes had become one of the most popular fruits in Japan.

Problem Statement

It is an attractive proposition to embark on export marketing specifically to lucrative markets such as Japan; however, a tremendous amount of effort, time and money has to be invested to fully understand the target market and to ultimately gain market accessibility. Therefore, a thorough knowledge of the importing procedures, the Japanese distribution system and business practices, and the Japanese fruit consumption behaviour is imperative to successfully gain market accessibility. Importers might face tremendous challenges as the Japanese market is very different in the areas of plant protection laws and distribution system. Moreover, the Japanese fruit consumption attitude and behaviour are also much different from other cultures (Azuma & Fernie, 2001). Despite these challenges, very little research has been carried out to provide information and insight into this area.

Research Objective

This study explores the market potential for Malaysian fresh tropical fruits in Japan.
Generally, the study aims to identify and determine the market potential of Malaysian fruits in the Japanese market. Specifically, the study seeks to:

1. assess the awareness, preference, attitude and acceptance of the Japanese consumers with regard to Malaysian fruits.
2. provide insight into the legal regulations and administrative procedures for exporting fresh fruits to Japan.
3. examine the Japanese distribution system for imported fresh fruits in the Japanese market.
4. identify and assess the potential supply of Malaysian fruits to Japan.

Research Methodology

There were four objectives for the study; evidently, each objective requires a different method of data gathering. For the first objective that was to gauge the awareness, acceptance, attitude and preference of the Japanese consumers with regard to Malaysian fruits, a survey was carried out at Tottori University in October 2006 during a seminar which focused on fruits commodity. Before the survey was conducted, a power-point presentation was shown to introduce various types of Malaysian tropical fruits, and pamphlets on Malaysian fruits were distributed to the seminar attendees. All attendees of the seminar were given the chance to participate in the survey. A sample of 64 respondents participated in answering questions to gauge their awareness about Malaysian fruits by a show of hands (see Table 1).

After the preliminary 'awareness' survey, another survey was conducted utilising the questionnaire as the instrument. Questionnaires were distributed to the same group of respondents to gauge their attitude, preference and acceptance of Malaysian fruits as well as their previous experience with these fruits. Answers from fifty-one respondents were collected and the key findings are shown in Table 2 to Table 4. To measure the respondents' acceptance of Malaysian fruits, respondents were asked to indicate on a five-point scale whether the overall appearance of each fruit was acceptable to them, where '1' indicates 'most acceptable' and '5' indicates 'least acceptable'.

To determine respondents' attitude towards Malaysian fruits, a five-point semantic differential scale based on the favourable/unfavourable item was employed. In addition, an open-ended question was included in the questionnaire to determine the respondents' favourite fruit. A five-point scale was utilised to

measure purchase likelihood, where 1 means 'most likely', and 5 means 'most unlikely'.

It is important to highlight that since Malaysian fruits were not yet available in the Japanese market, we were unable to conduct a sensory testing survey to gauge the preference and acceptance of the Japanese with regard to Malaysian fruits. Therefore, the sensory testing and acceptance survey was conducted in Kuala Lumpur at the Japanese Club. The target respondents of the survey were Japanese citizens that patronised the Japanese Club on the day of the survey. A fresh and processed fruit tasting fiesta called "JOM RASA" (LET"S TASTE) was held at the Japanese Club, Kuala Lumpur on 13 January 2007. Two sets of questionnaire (for fresh fruits and processed fruits respectively) were translated into the Japanese language and validated by Professor Katsuaki Takeda (Vice President of Wakayama University). A total of 93 respondents responded to the fresh fruit questionnaires and 80 answered the processed fruits questionnaires which were distributed by the researchers after the respondents had tasted the fresh and processed fruits. Finally, another survey was conducted at Wakayama University in June 2007 to gauge the Japanese' attitude and acceptance of the processed Harumanis mango sample that we had brought from Malaysia. The self-completion survey was administered to a convenience sample of 196 respondents. This particular survey on the Harumanis was carried out because during our visit to Japan in October 2006, the representative of the Japanese government specifically suggested that Malaysia should enter the Japanese market with the Harumanis.

For the second objective, initially, a focus group discussion was conducted in Malaysia with relevant exporters, importers in Japan, government and non government agencies in Japan, representatives of the Ministry of Agriculture and Agro-based Industry (Malaysia), Ministry of Agriculture (Japan), Federal Agriculture Marketing Authority (FAMA), Malaysia Agriculture Research and Development Institute (MARDI), Department of Agriculture (DOA) and the Japanese Embassy. The main objective of the focus group session was to understand the current rules and regulations for importing fresh fruits in Japan, and to gain insight from bodies in Malaysia that have vast experience in exporting fresh fruits to Japan. While in Japan, several in depth interviews were conducted with relevant key officers of various fruit-related organisations such as the Import Promotion Department of the Japanese External Trade Organisation (JETRO), the import agents and wholesalers of fresh fruits, Fresh Produce Import Facilitation Association in Japan, key officers in the Ministry of Agriculture, Forestry and Fisheries and the Japan Agriculture Association. Besides this, relevant information was also obtained from official reports published in Japan and Malaysia as well as observations from field visits.

The third objective was to examine the distribution system for imported fresh fruits in Japan. Efforts were focused on conducting interviews with representatives from AEON hypermarket, OTA auction wholesale market, Sembikiya Fruit Parlour (for high-end customers) in Ginza, Hanamasa Supermarket, Japanese trading companies, a wholesale market in Osaka, Kobe Yoko Ltd and Showa Boeki Co. Ltd., as well as with executives of Jusco and other importers.

The fourth objective was to identify the potential supply of Harumanis and other fruits to Japan. In this regard, the researchers concerned initiated meetings and interview sessions with FAMA and DOA officials in Kedah and Perlis. A field visit was made to observe the plantation of Harumanis at Bukit Bintang Plantation Perlis. Another field trip was organised to visit the pink guava plantation by Golden Hope and Beverages Sdn Bhd in Sitiawan, Perak.

Findings and Discussion

It can be concluded from the survey conducted in Tottori University in 2006 that the fruits that command high consumer awareness are pineapple, banana, red melon, yellow melon and mango (Table 1).

TABLE 1

FRUIT AWARENESS

Tropical Fruits	Frequency
Pineapple	64
Banana	64
Red melon	62
Yellow melon	50
Mango	45
Papaya	25
Mangosteen	25
White dragonfruit	24
Star fruit	20
Rambutan	19
Durian	10
Pomelo	8
Red dragonfruit	6
Guava	5
Duku	0
Jackfruit	0
Ciku	0

Table 2 indicates that star fruit, followed by mango and pineapple, are highly acceptable in terms of overall appearance. On the other hand, rambutan and durian have the lowest acceptance level in terms of their appearance.

TABLE 2

OVERALL APPEARANCE

Type of Fruits	**Mean**
Star fruit	1.90
Mango	2.08
Pineapple	2.22
Pamelo	2.47
Papaya	2.55
Mangosteen	2.75
Langsat	2.80
Dragonfruit	2.86
Jackfruit	3.13
Rambutan	3.19
Durian	3.40

Table 3 shows the results that indicate the respondents' attitude towards tropical fruits. The respondents had the most favourable attitude towards mango, and the least favourable attitude towards star fruit.

TABLE 3

ATTITUDE (FAVOURABLE/UNFAVOURABLE)

Type of Fruits	Mean
Mango	1.40
Mangosteen	1.68
Rambutan	1.87
Jackfruit	2.62
Durian	2.82
Star fruit	1.96

Table 4 indicates that mango is the most favourite fruit while jackfruit is the least favourite one.

TABLE 4

ATTITUDE (FAVOURABLE/UNFAVOURABLE)

Type of Fruits	Percentage
Mango	48.4
Mangosteen	21.5
Rambutan	9.70
Durian	8.60
Star fruit	7.50
Jackfruit	4.30

Most importantly, mango was the tropical fruit that respondents would most likely purchase when available. Evidently, the mango has great potential to be marketed in the Japanese market (Table 5).

TABLE 5

PURCHASE LIKELIHOOD

Fruits likely to be purchased	Mean
Mango*	1.01*
Mangosteen	2.27
Rambutan	2.35
Jackfruit	3.30
Durian	3.44
Star fruit	3.48

From the results of the preliminary survey, it is concluded that mango appears to be highly acceptable in terms of appearance, was the most favoured /liked fruit and was the highest ranked in terms of favourite fruit of the respondents. Most importantly, the respondents indicated that mango would be the tropical fruit they are most likely to purchase when available. Hence, we are quite confident that mango has a great potential to be marketed in the Japanese market.

Survey results derived from the "JOM RASA" Fruit Tasting Fiesta in 2007 are consistent with the earlier results, which suggested that star fruit and mango

were both perceived as the most acceptable fruits in terms of overall appearance, and that durian was the least acceptable (Table 6).

TABLE 6

OVERALL APPEARANCE

Type of Fruits	Mean
Star fruit	1.35
Mango	1.45
Rambutan	2.11
Mangosteen	2.12
Jackfruit	2.77
Durian	3.05

Interestingly, mango was evaluated as having the most acceptable sweet taste and texture. Indeed, it was found that mango was the most favourite fruit because of its sweetness and juiciness. In addition, the respondents had a positive attitude towards mango as they indicated it as the fruit they were most likely to purchase. Table 7 shows that the respondents were most likely to purchase mango (1.61) and least likely to purchase star fruit (3.48).

TABLE 7

LIKELIHOOD OF PURCHASE

Types of fruits	Mean
Mango	1.61
Mangosteen	2.27
Rambutan	2.35
Jack fruit	2.12
Durian	3.44
Star fruit	3.48

With regard to processed fruits, mango juice is the most preferred form of processed mango. Likewise, mango ice cream, mango nata de coco and mango jam are also evaluated highly as preferred processed fruits.

According to the import agents, most of the fruit imports which constitute about 30% of the total imports are sourced from the U.S. In 2004, Malaysia was placed 21st in rank in terms of the volume of fresh fruits imported by Japan (Japanese External Trade Organisation, 2005). The opportunities for exporters to export fresh fruits to Japan are great if they could produce good quality fruits. It was also revealed that most of the foreign fruits are imported by traders. Since May 2006, the Japanese government has imposed stringent regulations on the importation of fresh fruits. The chemical content of the fruits has to be checked against the Japanese positive chemicals listing. Following the stringent 'traceability' protocol, recently, Japan has managed to detect traces of prohibited pesticides in fresh fruits in 2007, particularly mangos from India.

From interviews conducted with seven Japanese fruit importers, it was found that importing fresh fruits into Japan was particularly difficult. There are only a few suppliers or traders (namely HANAMASA and AEON) who are able to import the fresh fruits. The factors critical to importing fresh fruits are the overall quality of the fruits and the presence of fruit fly. Of late, Japanese importers have started to import mangoes from India which are a new entry to the Japanese market. This will create stiff competition in the fresh mango market where mangoes imported from other countries are already available. It was also found from the interviews that only those traders who abide strictly by the rules and regulations for importing foreign fruits would be successful in supplying fresh fruits to Japan. The Japanese importers interviewed further identified mangosteen as a fruit with good market potential. The external and internal appearance, size and sweetness of mangosteen meet the criteria for fruit choice among the Japanese.

It was observed that the Japanese are less favourable towards the consumption of processed fruits; nevertheless, processed fruits are generally used as dessert toppings. For the traders, price is a factor that determines whether they are willing to import frozen fruits. For processed fruits like juice, the challenge lies in the life span of the juice itself, which is generally only about two weeks in the convenient stores. To date, Japan has been working with traders in Thailand and Philippines for juices. Other processed fruit-based food which is gaining in popularity among the Japanese is mango pudding that are mainly imported from Singapore. Apart from life span, lead-time is also another issue that must be addressed if traders plan to export processed fruits to Japan.

From the interview with two leading supermarkets (AEON and HANAMASA), it was found that AEON and HANAMASA both imported quite a variety of frozen fruits. For example, rambutan, mangosteen, dragonfruit and durian in frozen form were imported from Thailand. Other frozen fruits like pineapple were imported from Taiwan and grapes were from Chile. There is a high demand for frozen mango and pineapple but there is a low acceptance for

dragonfruit. The main reason for dragonfruit's lack of popularity is because the fruit is considered new and most consumers do not know how to eat it. Again, the issues of quality and lead-time were cited as factors that could impede the opportunities for the import of fruits by traders.

A key representative from one of the leading supermarkets in Tokyo asserted that the Japanese generally enjoy eating fresh fruits; however, they are not favourable towards having to peel off the skin of the fruits. Hence, most prefer to consume processed fruits such as pudding and juices. This resulted in a reduced demand for fresh fruits, which caused the supermarket to reduce its import of fresh fruits. Furthermore, the supermarkets faced problems with their imported fruits, such as black spots on most of the fruits. Apart from that, they also had delivery period issues where most traders could not comply with the prior agreement on delivery date. Timely delivery of the fruits is important to maintain the sweetness of the fruits. Other processed fruits that have gained popularity are the mango jelly and mango pudding. Besides the normal consumption by individual consumers, they are also served in the restaurants. Among the fresh fruits imported by the supermarket are the papaya, mangosteen, durian and mango which are regarded as the next popular fruits sold by this supermarket. In order to maintain their freshness and sweetness, the fruits are kept in the cold room in the region where the outlets are located. As the fruits are covered by insurance, the supermarket could claim reimbursement for any damaged fruits. The sales volume for the tropical fruits has been about 2 million yen per year (Japan Trade Directory, 2005).

On the possibilities of importing fresh fruits into Japan, the fruit importers that we interviewed highlighted the importance of the import quarantine procedures (see Appendix 1). Following the procedures, exporters have to establish a protection method where the fruits either have to be frozen at -17.8oC, or have to undergo vapour heating treatment (fumigation method) in order to eliminate fruit flies. So far, the mango and other fruits from the Philippines have been exempted from the quarantine procedures as the Philippine exporters have set up the vapour heating treatment facility. The importers interviewed import green bananas from Malaysia as this fruit is not on the prohibition list.

The Japanese Association of importers also highlighted the importance and requirement of the import quarantine procedures by Japan. Any country that wished to have its fruits imported into Japan has to develop a quarantine method to protect the fruits. So far, among the Asian countries, Thailand is among the successful ones after they developed the quarantine method and technology that are required by Japan. The diagram for the import quarantine procedures is shown in Appendix 1.

An importer at the interview mentioned the requirement for the vapour heating treatment (VHT). Different fruits would require different temperatures for the heating treatment. It is advisable for exporters to focus on one fruit only at the beginning to ensure success if they would like to bring the fruit into Japan, as it is more cost effective. In addition, exporters are also advised to select carefully the type of fruits for export to Japan in order to ensure acceptance, preference and marketability. Some of the fruits that are likely to have good demand by the Japanese consumers are mango, papaya, lychee, and mangosteen. Currently, Japan is importing about 12,000 tons of mangoes of many different grades from many different countries. It was suggested that Malaysia send mangoes of high-end quality that are comparable to the type of mangoes favoured by the Japanese, and which are facing an undersupply. Malaysia does not have to compete with the mango species from Thailand and Philippines which are of low-end quality. However, it was emphasised that fruits like yellow pittaya have been banned except for frozen ones.

During our meeting with the fruit wholesalers in OTA market, it was revealed that the wholesalers mostly handled local fruits. Imported fruits such as banana and pineapple from the Philippines, grapefruit from the U.S. and South Africa, oranges from the U.S, kiwifruit from New Zealand and avocados from Mexico are also imported and distributed by the wholesalers. It was mentioned that banana is Japan's flagship fresh fruit import, which account for the majority of total fruit import. The Japanese believe that bananas are good for brain development besides having other nutrients which are good for health. Bananas are highly in demand during school examinations. For the past three years, importation of mango has increased in volume; this suggests that demand for it has continued to grow steadily. However, it was emphasised that if Malaysian exporters wished to bring fresh fruits into Japan, they would have to comply with the positive list to trace the chemical residues on the fruits.

Besides being consumed as dessert, fruits are often used as gifts by the Japanese. In Tokyo, consumers have the opportunity to eat fresh fruits in a more luxurious way, in places called the fruit parlours which are a hit amongst the rich and famous. The fruit parlour serves the best quality fruits available. Interestingly, the fruits are displayed in very attractive packaging. They are either consumed in the parlour itself or taken away as a gift. Prices may go as high as RM750 per fruit.

According to the Japan External Trade Organisation (1998), Japan has imported fruits like avocado and papaya because these two fruits are not produced in Japan. Other fruits which have high potential in the Japanese market are mango and rambutan. However, these fruits require the vapour heating treatment; otherwise, Malaysia has to consider exporting frozen fruits instead. Japan is also considering importing bananas from Asian countries since bananas do not require the vapour heating treatment.

Conclusion

Japan has very stringent legislation such as the Plant Protection Law and the Food Sanitation Law for fresh fruits to be imported. The Japanese quarantine system for imported plants consists of prohibition of import, designation of port of import, phytosanitary certificates issued by the exporting countries, and import inspection. Under the Plant Protection Law, any importer of fresh fruits shall submit an "Application for Inspection of Plants and Import Prohibited Articles" to the designated port of entry. In addition, a "Phytosanitary Certificate" must be issued by a reliable and competent government agency of the exporting country, which shall be attached to all quarantine-designated plants. Imports of host fresh fruits are prohibited from countries or areas where certain destructive insects including fruit flies, and diseases exist. Because of such stringent plant protection procedures, only a few suppliers or exporters are able to export their fresh fruits to Japan. In most cases, more than 90 percent of any fresh fruit imports come from a single country or region (Japan Trade Directory, 2005). In fact, via a Government-to- Government Trade Agreement, Malaysia has applied for the lifting of the ban on its special mango variety. The procedure for lifting the ban comprises 13 steps (see Appendix 2). However, until today, Malaysia has only successfully complied with steps 1 to 6.

Since May 2006, the Japanese government has imposed new regulations on exporters. There are many fresh fruits which are prohibited to be imported under the Plant Protection Law. This law requires the fruits either to be frozen at -17.8C or to have to go through the vapour heat treatment (VHT). The reason for the treatment is to eliminate fruit flies that could damage the quality of the fruits. Different fruits would require different temperature for the vapour heating treatment. It is advisable for the exporters to apply for the lifting of the ban for one fruit initially as a gateway for other fruits to follow (see Appendix 2). It is more cost effective to do so in order to deal with the stringent importation protocol.

Another challenge facing the exporters is price. Since there are many exporters from many different countries competing to penetrate the Japanese market, price becomes a critical factor. It is pertinent for fruit exporters to carefully and clearly position their fruits in terms of uniqueness and nutrition value such that the fruits are able to compete against other tropical fruits from other countries. High quality translates to high returns, as the Japanese are willing to pay for quality as well as for good or attractive presentation.

Japanese consumers' great concern for the quality of their fruits is reflected in the manner in which they scrutinise the fruits based on their appearance. The skin of the fruits must be free from any scratches, black spots or blemishes, as these imperfections imply damaged and low quality fruits. In addition, the

Japanese consumers are also less tolerant towards fruits that lack size and shape uniformity (Gendall, Betteridge & Bailey, 1999). Furthermore, the Japanese are very particular about visual presentation; therefore, in order to be successful in this market, fruits must be attractively packaged, with important information such as nutritional value included. In addition to attractively packaging and displaying the fruits, effective packaging technology should also be innovated to ensure that fruit quality is maintained. More importantly, Japanese importers are very concerned about exporters' ability to supply the fruits in a consistent manner and to fulfil the market demand.

With regard to processed fruits which are gaining in popularity in Japan, the exporters are subjected to the provisions of the Food Sanitation Law, meeting quality standards and labelling requirements. Besides these procedures, importers must handle the issue of shelf-life and lead-time to ensure product quality. In addition, fruit processors should attempt to keep the processed fruits' appearance and taste as close as possible to those of fresh ones.

It should be highlighted that for fruits that are difficult to be exported fresh, exporting them in processed form such as juice, jam, dried fruit or frozen fruit is an option. Besides the fresh fruits, the processed fresh-fruit base is also gaining in popularity. Among the popular ones are the mango pudding and juice concentrates. However, it is noted that the taste of frozen fruits is significantly different from fresh ones. The fresh fruits are apparently juicier and sweeter.

Currently, there are a few supermarkets in Japan that have imported tropical fruits such as durian, mangosteen, dragonfruit and rambutan, mainly from Thailand. The fruit that has good potential in the Japanese market would be mangosteen because of its interesting exterior and interior appearance, size, and its undeniable sweetness. Presently, mangosteen is imported primarily from Thailand. However, the importers must ensure that the fruits look fresh as any scratches and irregular spots found on the skin of the fruits are considered as defects. Other fruits that have high potential are the banana and durian because these two fruits are not on the prohibition list for importation of fruits. Japanese consumers dislike the strong smell of the durian; hence, if Malaysia plans to export durian to Japan, obviously the durian has to be of the odourless variety. It is noted that recently Thailand has produced a thornless and odourless durian variety.

The market potential of mango in Japan must not be overlooked. From our field observation and the consumer acceptance survey, it was found that the Japanese hold a very favourable attitude towards mango and are most likely to purchase it when it is available in the market. Furthermore, the mango was also rated as respondents' favourite tropical fruit when assessed against mangosteen, rambutan, durian, star fruit and jackfruit. Clearly, the taste of the mango, which

is sweet and juicy matches the taste preference of the Japanese consumers. The results of this study confirm that there is significant potential market for tropical fruits in Japan, particularly for the mango. We foresee the mango as the most promising fruit to be marketed in Japan, as it is able to meet consumers' preference and market demand. Most importantly, these findings provide strong justification for Malaysia's efforts in applying for the lifting of the ban on its special mango variety (Harumanis). At present, Malaysia has successfully completed the sixth step in the thirteen-step procedure for the lifting of the ban (see Appendix 2).

Four strategies are recommended to facilitate Malaysia's entry into the fresh fruit market in Japan. They are:

Strategy 1 – Production

The main constraints to efficient production and quality improvement of fruit on a commercial scale are the knowledge and ability of human resources in adopting modern technology. Large export income earners like Thailand and the Philippines are supported by commercial plantations. Commercial orchards of fruit crops require technology inputs to the production, post harvest, processing and marketing systems. If Malaysia intends to export on a large scale, it must begin to plan for commercial farming. The government should also assist in marketing as access to international markets is usually only possible through a Government-to-Government (G-to-G) approach. The government's involvement would also lend credibility to the quality of the produce. The management of fruit quality is of utmost importance, as this will enable Malaysia to export products with confidence to the most discerning customers such as the Japanese.

Strategy 2 – Logistics/Supply Chain Management

Supply Chain Management (SCM) is a network of connected and interdependent organisations mutually and cooperatively working together to control, manage, and improve the flow of materials, products, and information from suppliers to end users. In order to ensure Malaysia's success to enter the Japanese market, it is recommended that Malaysia should collaborate with a Japanese partner especially at the initial stage. The international market requires standardised, consistent, reliable and high quality produce/products. Areas related to facilities and human resource development that need collaboration are in quality assurance, standardisation and certification, long distance transport, quarantine development, and consumer and promotion.

Strategy 3 – Regulations

As suggested by the Japanese Ministry of Agriculture, Malaysia must complete steps 7 to13 on the Procedures for Lifting the Ban of Importation. Food safety standards and traceability have become important concerns in the marketing and export of agricultural produce of many trading nations. There are stiffer food

safety regulations, increased productivity, improved efficiency, transparency and branding. Sanitary and Phytosanitary (SPS) measures are technical regulations designed to prevent potentially adverse impact of international trade on human, animal or plant life or health.

Strategy 4 – Product

The action plan includes the decisions on packaging, branding and positioning of the Harumanis mango against other mangoes available in the Japanese market. The product must be delivered according to the Japanese expectation and specification. This includes good taste (good flavour), freshness (which can be assured using suitable logistics), well-controlled maturity and excellent packing and packaging style. As the Japanese 'eat with their eyes', the first impression on the fruit and packaging must be appealing. Malaysia must 'do it right' the first time during the introductory period and maintain the standard in order to sustain its competitive advantage. It has been widely acknowledged that the Japanese are very concerned about packaging; therefore, packaging must fulfil these criteria which are: pleasing, practical and protective. Building a positive image must be seen as an investment and a means to differentiate the product against those of the competitor. In essence, the packaging and promotion materials should emphasise the health value, taste and freshness of the fruit. Furthermore, use of packaging material that is environmentally friendly is considered a plus point for the export country.

In conclusion, the mission to export our fruits, specifically the Harumanis mango to Japan will only materialise if the recommended strategies and action plan are implemented or executed immediately by the relevant authorities. Time is of the essence especially when India has been sanctioned temporarily in 2007 for chemical residue found in their premium Indian mango when they first exported the mango for the 'high-end' customers in Japan in early 2007. As such, the time is right for Malaysia to take advantage of the excellent opportunity available, and attempt to enter the market in 2008, and to fulfil the 'unfinished job' of Government-to-Government agreement between the two countries. Any further delay in completing the terms of the agreement will further tarnish the image and reputation of the country, business trust and governmental relationship between Malaysia and Japan.

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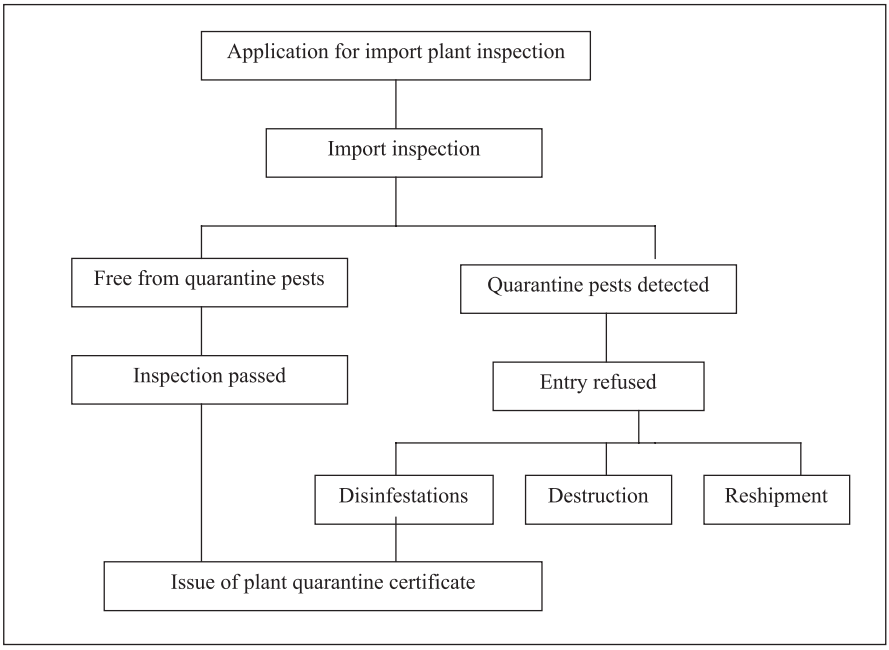
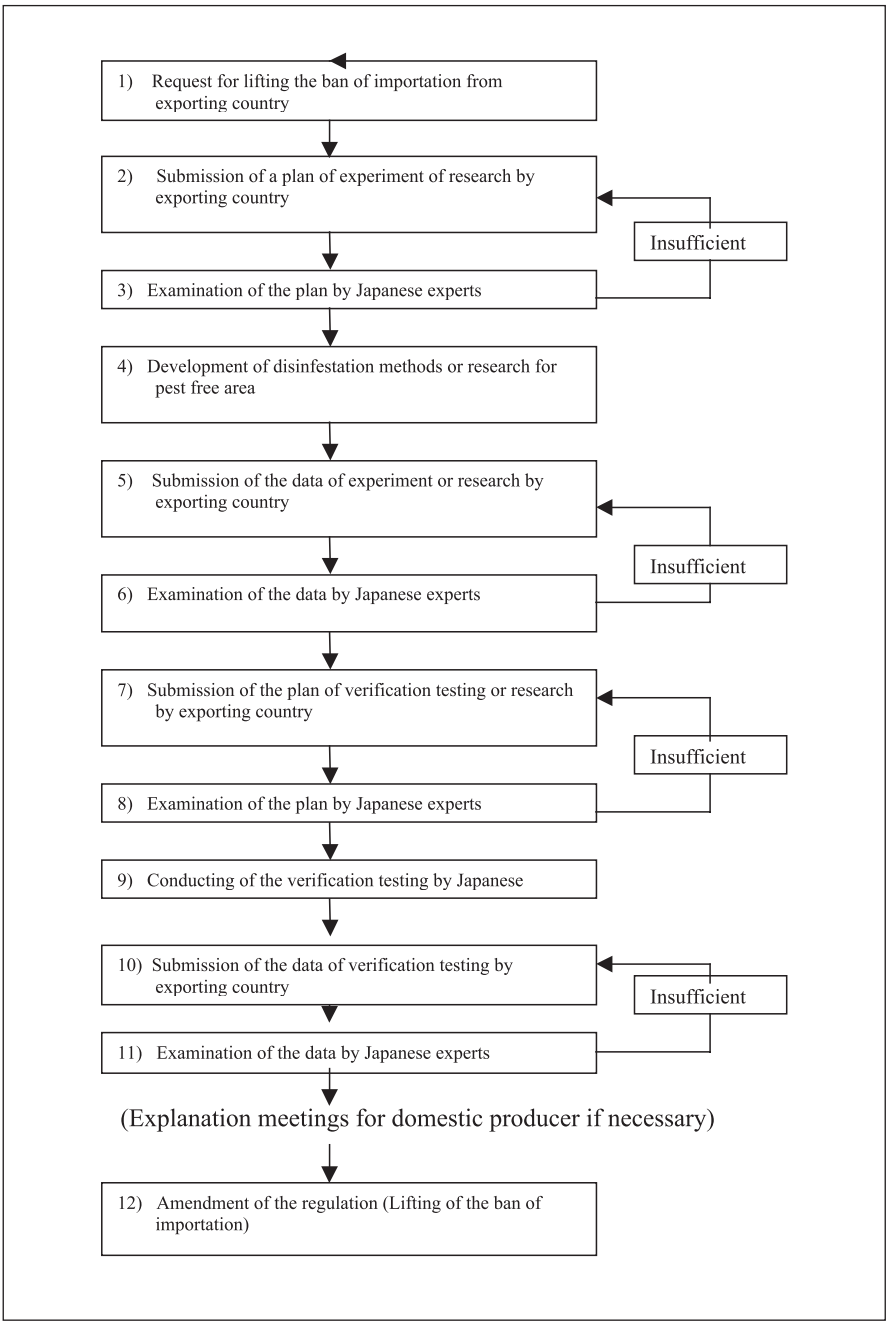
Appendix 1: Import quarantine procedure, Japan



Appendix 2: Procedures for Lifting The Ban of Importation



The Broiler Chicken Industry in Malaysia: Some Evidences on the Structure, Conduct and Performance

by
*Bisant Kaur and Fatimah Mohamed Arshad

Abstract

The broiler chicken industry in Peninsular Malaysia has undergone major structural changes in recent years, notably the increasing vertical integration in the industry, which has led to concerns over market power by wholesalers at the expense of producers and consumers. This paper investigates the performance of the broiler market by applying the Structure, Conduct and Performance approach. Using primary data collected from a survey on the wholesale market for broilers, it was found that there was a high degree of concentration in most of the wholesale markets as evident by the high concentration ratio and Herfindahl-Hirshman Index. There are also several conditions that restrict the entry of new players. However, in spite of structural rigidities, the study found evidence of spatial market integration using cointegration analysis. This finding suggests that the government could reconsider price control policy measures in the market.

Keywords: Structure-conduct-performance, industry concentration, market integration, cointegration, livestock, Malaysia.

Introduction

The broiler chicken industry in Peninsular Malaysia has undergone major structural changes, particularly increasing vertical integration and growing market concentration at the wholesale level. There has also been a gradual shift towards contract farming with an increasing number of broiler farmers working under contract arrangements for wholesale firms and integrators. These structural developments are likely to affect the performance of the industry, particularly in pricing efficiency and market integration. Evidence of inefficiencies may manifest in inefficient operations of markets and higher prices paid both by input purchasers and consumers.

The broiler industry is frequently embroiled in crises as a result of severe price fluctuations and these have often been blamed on the boom-and-bust cycle in

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production. In order to reduce price volatilities, the government introduced a market support scheme via a committee pricing system in 1986. Under this scheme, a weekly ceiling price is negotiated and fixed and this acts as a reference price beyond which the market price should not exceed. However, broiler prices continue to experience dramatic fluctuations in spite of the government's initiatives. It is thus important for producers to continually manage supply to match demand so that price fluctuations are minimised. This requirement underlines the importance of adequate information flows, particularly to the producers.

The wholesale sector in the Malaysian broiler chicken industry appears to be highly concentrated as evident by their relatively small numbers but large market shares. The farm level suppliers, on the other hand, are fragmented, physically distant from the retail markets, and some of them are dependent on the wholesalers for inputs and credit which reduces their bargaining power somewhat. Lack of ready access to market information and marketing facilities has also pushed many of the farmers to rely almost totally on intermediaries (wholesalers) to carry out the marketing decisions and functions. In fact, the close relationship between farmers and wholesalers is sometimes described as a symbiotic relationship where each needs the other. While they may need each other to function, the bargaining power scale is skewed towards the wholesalers in view of their economic strength and most importantly, access to market information, both from the supply and demand sectors.

This paper draws on the widely accepted framework of Structure-Conduct-Performance (SCP) paradigm to study the impact of increased concentration in the broiler chicken industry in Peninsular Malaysia. The following section presents the theoretical framework and methodology used in this study. This is followed by a discussion on the findings and conclusions.

Literature Review

The marketing system for agricultural produce in Malaysia has been found to be seriously flawed with inefficient price discovery mechanism, for instance, the market for fish (Mohd Ariff et al., 1985), rice (Fatimah, 1992), floriculture (Chiew et al., 1996) and vegetables (Sharifah, 1994). The traditional method of selling through consignment is still being practised by farmers at large, despite the growing transparency in market prices and information. Under such an arrangement, the wholesalers have the total say on the price to be paid to the farmers as well as the timing of payment to the farmers. In the Malaysian fish market, price discovery through the "whispering system" is still being practised despite various attempts to introduce an auction price system. The prevalence of these "indirect market malpractices" is attributed to the lack of competitive pressure at the wholesale level and market imperfections at the farm level.

Market concentration is often of concern to economists since it indicates the extent to which activities take place in a competitive environment. Empirical evidence indicates that concentration is more likely to erode competition and result in a monopolistic industry. This has led to concerns over the implications of concentration on market integration, control of supplies, price discovery mechanism and the overall degree of competitiveness in an industry (Folwell et al., 1996).

Although there is much concern over the impact of increased concentration in the food industry, empirical analysis on food markets in Malaysia has been scarce. Previous studies include Fatimah (1980) on paddy, Fatimah and Gibbons (1987) on fish and Rohizad (2002) on vegetables. The broiler industry has not been investigated previously for the effects of concentration, in spite of structural concerns relating to increased vertical integration.

Studies on the impact of increased market concentration in the food industry usually draw explicitly on the Structure-Conduct-Performance (SCP) paradigm from the theory of industrial organisation. The SCP paradigm traces the pathway for identifying the factors that determine the competitiveness of markets, analysing the behaviour of firms and assessing the impact of an industry. First developed by Mason (1939) and later improved by Bain (1956, 1959), the traditional SCP approach postulates a one-way causal relationship from the structure of the market to its conduct and then performance. Many studies have tried to link market structure to performance. Bain (1956) showed that higher profits accrued to firms in industries with high concentration and barriers to entry. However, the traditional SCP paradigm was criticised by the New Industrial Economists who argued that conduct is the key element connecting structure and performance (Cowling and Waterson, 1976).

The general SCP approach (Scherer and Ross, 1990; Neuberger, 2001), proposes that there are interdependencies and feedback effects between market structure, conduct and performance. Market imperfections such as uncertainty, asymmetric information and transaction costs are integrated into the approach as a determinant of structure and conduct. Performance is postulated to result from structure and conduct but intervention by public or private order institutions may be necessary to improve performance (Greenwood and Carter, 1997).

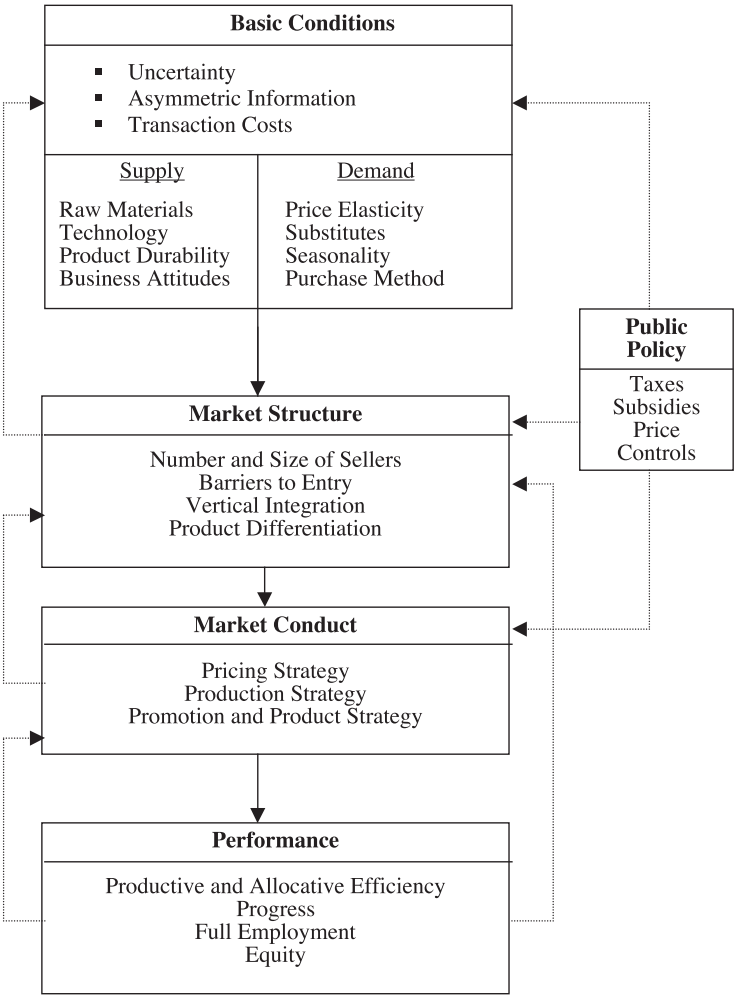
According to Scherer and Ross (1990), good performance embodies several fundamental goals of society, including production efficiency, full employment of resources and equitable distribution of income, which implies that producers should not earn returns in excess of the service supplied. Although these goals may not be consistent with each other, good performance means that firms should attempt to satisfy all the goals as far as possible. The degree to which the goals have been satisfied may be measured by several means, including the

magnitude of price-cost margins. The SCP approach emphasises that market power is a source of poor market performance.

Methodology

Theoretical Framework

This study utilises the general SCP approach that has been revised to take into account characteristics of agricultural markets, particularly the broiler industry in Malaysia. The modified SCP paradigm is depicted in Figure 1.



Source: Adapted from Scherer and Ross (1990) and Neuberger (2001).

Figure 1: Structure Conduct and Performance Framework

All variables are considered endogenous in the general SCP approach because of interdependencies and feedback effects between market structure, conduct and performance. Institutional infrastructure is included as a determinant of structure and conduct. In order to use this paradigm in analysing agricultural markets, it is necessary to integrate market imperfections such as uncertainty, asymmetric information, and transaction costs into the basic conditions.

A total application of the SCP framework on the assessment of an industry requires a comprehensive and massive data collection to verify each dimension of the SCP. This study focuses on the salient market indicators to provide some evidences on selected aspects of the SCP which are considered adequate to provide some understanding on the relationship between structure and conduct and their overall effect on the performance of the industry. The following sections provide a brief description of the statistical analyses utilised to measure selected dimensions of the SCP.

Market Structure

The major dimensions of a market structure are market competition, barriers to entry and product differentiation. This study utilises both descriptive and inferential statistics to illustrate and measure these dimensions. Two measures are normally used to indicate the degree of competitiveness of a market, i.e. the concentration ratio (CR) and the Herfindahl-Hirschman Indices (HHI). The method of calculation for these indices is given below.

Market Concentration Ratios: Market Concentration Ratios measure the percentage of market share owned by the n largest firms in the industry (Church and Ware, 2000). The concentration ratio (CR) can be expressed as:

$$CR_n = X_1 + X_2 + \ldots\ldots X_n \qquad (1)$$

where Xi is the market share of the ith firm. Usually the ratio is related to the 4, 8, 20, or 50 largest companies.

Although the concentration ratio is useful as a measure of competitiveness, it provides an incomplete picture of the concentration of firms in an industry since it does not use the market shares of all the firms in the industry. Furthermore, it does not provide information about the distribution of firm size.

Herfindahl-Hirshman Index: Another measure of market concentration is the Herfindahl-Hirshman Index (HHI) (Hirschman, 1964) which can be expressed as:

$$HHI = \sum_{1}^{n} X_1^2 \qquad (2)$$

where X_i is the market share of the ith firm and n is the number of firms in the industry.

The HHI provides a more complete picture of industry concentration since it considers the market shares of all the firms in the industry and the market shares are squared so that more weight is placed on the larger firms. The HHI changes when there are changes in market shares among the larger firms. The maximum value of the HHI is 10,000. If there is only one firm with 100% market share in the industry, the HHI would assume the maximum value. The HHI will decrease as the number of firms increase (U.S. Department of Justice, 1992).

According to the guidelines of The U.S. Department of Justice (1992), an HHI of less than 1000 represents a relatively unconcentrated market, an HHI between 1000 and 1800 represents a moderately concentrated market, and markets having an HHI greater than 1800 are considered to be highly concentrated.

Market Conduct

Market conduct refers to the actual behaviour of buyers and sellers in a market. This study focuses on several features of the broiler marketing system, including buying and selling practices, integration among wholesalers and the price discovery mechanism. Primary data collected from a survey on wholesalers are used to provide some evidence on the market conduct of the traders.

Market Performance

Market performance looks at the end result of the marketing system. In this study, the performance of the broiler chicken market in Peninsular Malaysia is empirically evaluated using the criterion of spatial market integration. Cointegration analysis as developed by Engle and Granger (1987) is used to test for the existence of price linkages across inter-state regional broiler markets. Generally, if regional markets are linked in the long-run, i.e., if the price series are cointegrated, there is a long-run equilibrium relationship between them indicating that the markets are integrated (Silvapulle and Jayasuriya, 1994).

Following the Engle and Granger (1987) approach, the cointegrating regression is specified as follows:

$$P_{i,t} = \alpha_0 + \alpha_1 P_{j,t} + u_t \qquad (3)$$

where Pi,t is regional market price, Pj,t is central market price, $\alpha 0$ is a constant, and μt is the residual series which has to be tested for stationarity in order

to establish long-run relationships between regional market and central market price.

The residuals from Equation 3 are used to test for stationarity using the following equation:

$$\Delta \hat{u}_t = \rho_1 \hat{u}_{t-1} + \gamma_1 \Delta \hat{u}_{t-1} + \varepsilon_t$$

Prior to testing for cointegration, the presence of stationarity in the time series data is tested by using the Augmented Dickey-Fuller (ADF) test (Engle and Granger, 1987).

Spatial market integration refers to a situation where price movements of a commodity in geographically separated markets are linked. Generally, when two markets are integrated, price changes in one market should be followed by changes in the other market (Takayama and Judge, 1971). Since market integration generally means the free flow of information and products over space, form and time, it is closely related to the concept of efficiency (Barrett, 1996). Market integration signifies that price signals and market information are transmitted accurately across markets. Therefore, markets that are integrated facilitate the dissemination of accurate price information which assists in making correct producer decisions and ensuresefficient product movements. Hence, the performance of the market may be evaluated by examining linkages in prices across spatially separated markets.

The theoretical basis for analysis of spatial market integration is the Spatial Price Equilibrium (SPE) model (Takayama and Judge, 1964, 1971), where competitive commodity arbitrage is assumed to lead to equilibrium so that price differences between markets will just equal transfer costs. Under conditions of perfect competition, prices across markets will be inter-related if their price differential equals transfer costs.

Data

The structure and conduct of the broiler market was evaluated in this study through the analysis of primary data obtained through a field survey by the Federal Agricultural Marketing Authority (FAMA) in 2003. The objectives of this survey were to determine the actual number of wholesalers operating in the market, to assess the characteristics of the broiler marketing system and to obtain information on the price determination process. The information that was collected includes marketing practices, the existing institutional structures, the degree of market power of intermediaries, and other factors affecting the competitiveness of the sector. A total of 260 primary level wholesalers throughout

Peninsular Malaysia who purchased broilers at the farm level, either directly or through collectors, were interviewed for this survey using questionnaires.

A field survey covering fourteen centres, which included all the eleven states in Peninsular Malaysia, the Federal Territory of Kuala Lumpur, and the East Malaysian states of Sabah and Sarawak, was carried out by FAMA. Prior to the actual field study, a preliminary exercise was conducted to list all wholesalers involved in trading broilers in April, 2003. This step was necessary to ascertain the actual number of wholesalers who were involved in the marketing chain for broilers since there were no recent surveys on the wholesale sector. This initial survey was made possible by enlisting the assistance of local authorities and by using FAMA's existing contacts with farmers and wholesalers through the organisation's various programmes, for instance, trading, market information collection and enforcement.

From the outset, it was decided to limit the collection of data to primary level wholesalers. The term primary level wholesalers was defined in this survey to cover only wholesalers who purchased live broilers either directly from farmers or indirectly through agents/collectors who in turn were first level buyers at farm level. This definition was important to exclude second and third level buyers, which might lead to the problem of multiple counting when trying to ascertain the volume of transactions. It was also necessary to exclude the wholesale buyers operating in the urban wholesale markets who buy either live or slaughtered broilers in bulk to supply to retailers. The primary study on broiler marketing was carried out in May 2003. The interview method using pre-designed questionnaires was used and FAMA research assistants carried out interviews on all the wholesalers listed earlier for this study.

The performance of the market was analysed through studying linkages in prices between the central market of Kuala Lumpur and wholesale price levels for each of the eleven regional markets in Peninsular Malaysia. Monthly broiler prices from 1982 to 2001 obtained from various price bulletins of FAMA were used, giving a total of 240 observations for each centre.

Findings and Conclusions

Structure of the Broiler Marketing System

Market Size and Distribution

The total number of primary level wholesalers in Peninsular Malaysia was found to be 260. Of this, almost 85% or 223 wholesalers were direct buyers from farm level. Only 37 wholesalers were found to be purchasing broilers indirectly from agents or collectors. The distribution of wholesalers by regional markets is given in Table 1.

Table 1: The Number of Primary Level Broiler Wholesalers by States in Peninsular Malaysia, 2003

Regional Centre	Number of Direct Wholesalers	Number of Indirect Wholesalers	Total Number of Wholesalers	Percentage Distribution by State
Johor	30	6	36	13.8
Kedah	12	-	12	4.6
Kelantan	41	5	46	17.7
K. Lumpur	27	-	27	10.4
Malacca	7	-	7	2.7
N. Sembilan	7	2	9	3.5
Pahang	34	8	42	16.2
Perak	16	1	17	6.5
Perlis	-	2	2	0.8
Penang	9	1	10	3.8
Selangor	11	3	14	5.4
Terengganu	29	9	38	14.6
Total	223	37	260	100.0

Most of the wholesalers are concentrated in the states of Kelantan, Pahang, Terengganu, and Johor. Together, these four states account for 62% of the total number of wholesalers.

Weekly purchase of live broilers was used as a criterion for comparing the size of operations of the wholesalers. The total weekly purchases for the twelve regional markets were found to be 4,151,479 kg while the average weekly purchase per wholesaler was about 15,967 kg (Table 2). There were wide variations in terms of scale of operations with wholesalers in Kuala Lumpur and Selangor operating on a much bigger scale than other regional markets. In Perak, for instance, each wholesaler handled an average weekly volume of only 4,341.18 kg whereas in Kuala Lumpur, each wholesaler handled about 39,632.19 kg.

Kuala Lumpur has the largest share of the broiler market accounting for about 25.78% of the total volume transacted. This was followed by Kelantan with 20.63% market share, Selangor with 12.52%, and Kedah with 9.91%. These four regional centres had a total market share of 68.84 % in terms of volume.

Table 2: Weekly Purchases of Live Broilers by Wholesalers in Peninsular Malaysia, 2003 (kg)

Regional Centre	Direct Purchases from Farmers	Indirect Purchases through Collectors/ Agents	Total Weekly Purchases	% of Total Volume by Centre	Average Weekly Purchases Per Wholesaler
Johor	159,950	37,400	197,350	4.75	5,481.94
Kedah	411,400	-	411,400	9.91	34,283.33
Kelantan	856,540	-	856,540	20.63	18,620.43
K. Lumpur	1,070,069	-	1,070,069	25.78	39,632.19
Malacca	53,000	-	53,000	1.28	7,571.43
N. Sembilan	108,050	1,400	109,450	2.64	12,161.11
Pahang	304,050	1,750	305,800	7.37	7,280.95
Perak	73,800	-	73,800	1.78	4,341.18
Perlis	-	31,200	31,200	0.75	15,600.00
Penang	210,000	2,000	212,000	5.10	21,200.00
Selangor	519,820	-	519,820	12.52	37,130.00
Terengganu	307,050	4,000	311,050	7.49	8,185.53
Total	4,073,729	77,750	4,151,479	100.00	15,967.23

Market Competitiveness

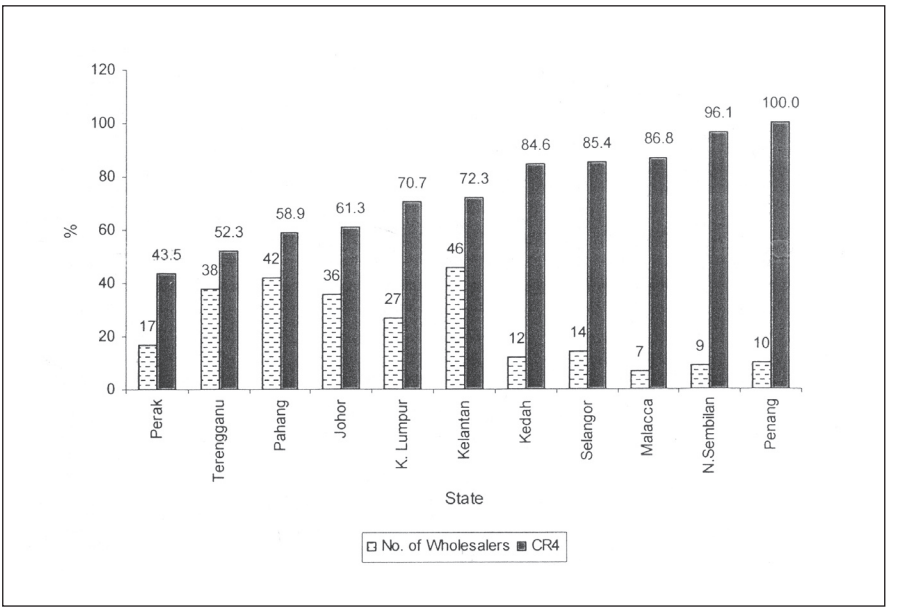
The results indicate that the CR for the four largest wholesalers is very high for three states, i.e. Penang, Negeri Sembilan, and Malacca where there are few wholesalers (Table 3 and Figure 2). When the CR for the eight largest wholesalers is calculated, it is found that the level exceeds 80% for all centres, except Terengganu and Perak. In the case of the CR for the twenty largest wholesalers, the figure is close to 100 for all the centres that are measurable.

Table 3: Competitive Index of Wholesale Broiler Markets in Peninsular Malaysia, 2003

Regional Centres	Total Number of Wholesalers	Concentration Ratio			Herfindahl-Hirshman Indices
		Four Largest	Eight Largest	Twenty Largest	
Johor	36	61.31	80.21	99.54	1218.28
Kedah	12	84.59	96.11	n.a	1365.73
Kelantan	46	72.29	84.57	98.97	3273.22
K. Lumpur	27	70.71	88.52	99.96	6035.30
Malacca	7	86.79	n.a	n.a	2814.30
N.Sembilan	9	96.12	n.a	n.a	1030.54
Pahang	42	58.86	85.68	99.80	2675.44
Perak	17	43.53	73.35	n.a	3047.30
Perlis	2	n.a	n.a	n.a	9260.36
Penang	10	100.0	n.a	n.a	4117.12
Selangor	14	85.41	98.67	n.a	912.22
Terengganu	38	52.31	73.96	97.27	2395.87
Total	260				

Note: n.a=not available

Figure 2: Concentration Rations of Top Four Wholesalers in Peninsular Malaysia, 2003



In general, if the CR of the 4 largest firms (CR4) is below 40, the industry is considered to be competitive, with a number of firms competing, but none owning a substantial proportion of the market. However, if the CR4 measure is more than 90, then the firms that control more than 90% of the market are effectively oligopolistic. In the present study, none of the states have a CR4 below 40 but two states, i.e., Penang and Negeri Sembilan have a CR4 exceeding 90.

Using the benchmark of anti-trust practices of 1800 in the USA, the results indicate that eight of the twelve regional centres exceed the benchmark, indicating that the majority of broiler markets in Peninsular Malaysia are highly concentrated. The state of Perlis, which has only two wholesalers serving the whole state, has the highest HHI. Kuala Lumpur, the main terminal market, has the second highest concentration.

Barriers to Entry

Although free competition appears to exist in the broiler market in theory, there are several conditions that make the entry of new players very difficult. Among the barriers are long-standing relationships between farmers and certain wholesalers, resulting in confidence and trust in conducting business dealings. About 55% of the wholesalers have below 10 years' experience in the business while 45% have more than ten years' involvement. In the Kuala Lumpur market for instance, 50% of the wholesalers have more than ten years' experience trading in broilers.

In actual practice, licensing requirements are an effective barrier to entry. Under the Supply Control Act (Chicken) 1996, all wholesalers and retailers of broilers are required to be licensed by local authorities before they can trade. This effectively limits the number of intermediaries who are allowed to trade in the market.

Product Differentiation

Generally there is no clear product differentiation in the case of broiler meat sold in wet markets or those supplied to institutional buyers. The price obtained is uniform regardless of the origin.

However, broiler meat sold in supermarkets is normally branded to cater to the needs of the more discerning consumers. Several brands are available, the most popular being Ayamas, followed by Ayam Dindings, Farm's Best, and Ayam A1. These brands are owned by the large integrators in the country.

The general perception among those in the trade is that there is as yet no marked preference for branded chicken among consumers. This may be attributed to the fact that most consumers tend to purchase freshly slaughtered chicken which is easily obtainable in wet markets. Branded chicken as found in supermarkets is generally perceived as not fresh and the quality may have deteriorated after a period of storage.

Market Conduct

Buying Practices

The direct payment system is the most common mode of purchase for broilers. Only 14.9% of wholesalers purchase on a consignment basis which usually means that the price is determined after the products have been sold (Table 4).

This implies that the farm price is usually set at the time of purchase by the wholesalers for a majority of transactions in broilers.

Table 4: Modes of Broiler Purchases at Farm Level in Peninsular Malaysia, 2003

State	Outright Purchases	Consignment Basis
Pahang	37	4
Johor	24	11
Kelantan	40	6
Negeri Sembilan	6	2
Selangor	12	2
Terengganu	37	1
Kuala Lumpur	24	4
Kedah	10	1
Perlis	2	0
Penang	10	3
Perak	15	5
Malacca	6	0
Total	223	39

Selling Practices

Most of the wholesalers dispose of their products in the wet markets that are located around the country. Based on the percentages given by individual traders in terms of distribution of their products to market outlets, it is possible to ascertain the distribution patterns among the various states. On the whole, almost 73% of broilers are distributed to wet markets, although there is great variability in the state-wise distribution (Table 5).

The percentage of broilers distributed to wet markets exceeds 90% in Kelantan and Negeri Sembilan, while it is below 15% in Terengganu and Penang. Other market outlets such as supermarkets, sundry shops, supermarkets and institutional buyers take up only a small proportion of the broiler supply, except in the latter two states where the dominant channel appears to be institutional buyers other than restaurants and hotels.

In addition, almost 85% of the wholesalers sell broilers to retailers using the outright sales method which means that the price is fixed at the time of delivery (Table 6). Credit terms of between three to thirty days are offered to buyers.

Table 5: Distribution of Broilers by Type of Market Outlets in Peninsular Malaysia, 2003 (Percentage)

Outlets/States	Pahang	Johor	Kelantan	N.Sembilan	Selangor	Terengganu	KL	Kedah	Perlis	Penang	Perak	Malacca	Total
Wet Markets	60.19	76.3	93.87	96.71	84.86	12.11	80.26	84.16	76.92	14.62	82.77	60.75	72.79
Supermarkets	20.65	8.71	0.17				15.07				5.35		5.76
Sundry Shops	7.43	1.84	0.15		2.42				11.92		5.08		1.14
Hotel/Restaurant	9.63	5.55	0.05				4.67		9.61	9.91			2.69
Other Institutions	2.1	7.6	5.76	3.29	12.72	84.51		15.84	1.55	75.47	6.8	39.25	15.46
Export						3.38							2.13
Total	100	100	100	100	100	100	100	100	100	100	100	100	100

Notes: KL=Kuala Lumpur
N. Sembilan=Negeri Sembilan

Table 6: Modes of Broiler Sales to Retailers in Peninsular Malaysia, 2003

Regional Centre	Outright Sales	Consignment Basis
Pahang	36	5
Johor	25	10
Kelantan	40	6
Negeri Sembilan	7	0
Selangor	13	1
Terengganu	36	1
Kuala Lumpur	26	7
Kedah	10	1
Perlis	2	0
Penang	10	5
Perak	12	7
Malacca	6	0
Total	223	43

Sources of Supply

Most of the wholesalers reported that they obtained their supplies of broilers from independent farmers (Table 7). Only 25% of wholesalers had made arrangements with contract farmers to ensure a steady supply of broilers. On average, these wholesalers had had experience of about seven years in contract farming.

Table 7: Sources of Broiler Supply in Peninsular Malaysia, 2003

Sources of Supply	Number of Wholesalers Involved	Percentage of Wholesalers
Contract Farmers	65	25.0
Independent Farmers	163	62.69
Collectors	4	1.54
Other Wholesalers	56	21.54
Importers	4	1.54
Own Farms	17	6.54

The biggest number of contract trading arrangements was in the state of Kelantan where 19 out of the total number of wholesalers had made contract arrangements with farmers (Table 8).

Table 8: Number of Wholesalers Involved in Contract Farming in Peninsular Malaysia, 2003

Regional centre	Number	Percentage of Total
Johor	6	16.67
Kedah	2	16.67
Kelantan	19	41.30
Kuala Lumpur	3	11.11
Malacca	5	71.42
Negeri Sembilan	5	55.56
Pahang	2	4.76
Perak	2	11.76
Perlis	1	50.00
Penang	4	40.00
Selangor	3	21.43
Terengganu	13	34.21
Total	65	25.00

Figures on the actual number of farmers involved in contract farming are unavailable although about a quarter of all broiler supplies originate from contract farms. Contract farming is likely to increase in importance in the future as farmers and wholesalers alike appreciate the importance of obtaining adequate supplies without severe price gyrations.

Integration among Wholesalers

Membership in associations was used as a criterion to determine the level of integration among wholesalers. Only 36.5% of the respondents were found to be members of poultry associations. This could indicate that most of the wholesalers operated individually and there was lack of cooperation among them to improve their conditions through collaborative efforts. The distribution by state shows that Perak has the highest percentage of association membership, followed by Kuala Lumpur and Malacca (Table 9).

Table 9: Membership of Associations by Broiler Wholesalers in Peninsular Malaysia, 2003

Regional Centre	Number of Members of Poultry Associations	Percentage of Members by State
Johor	3	8.33
Kedah	4	33.33
Kelantan	17	36.96
Kuala Lumpur	13	48.15
Malacca	3	42.86
Negeri Sembilan	2	22.22
Pahang	6	14.29
Perak	11	64.71
Perlis	0	0.00
Penang	3	30.00
Selangor	4	28.57
Terengganu	21	55.26
Total	87	33.46

Transportation

Wholesalers provide the essential service of transporting broilers from the farm to the market centres. This is usually carried out early in the morning since the broilers are transported by open trucks that leave them vulnerable to heat dehydration and the mortality rate is believed to be quite high due to this factor.

Transportation costs tend to vary widely among the regional centres and even within each region (Table 10). The general trend seems to be towards rising transportation costs in line with rising fuel prices and the inflation rate.

Table 10: Transportation Costs for Broilers by State in Peninsular Malaysia, 2003 (RM/kg)

Regional Centre	Costs
Pahang	0.24
Johor	0.16
Kelantan	0.22
N.Sembilan	n.a.
Selangor	0.56
Terengganu	0.17
Kuala Lumpur	0.13
Kedah	0.32
Perlis	0.10
Penang	0.14
Perak	0.13
Malacca	0.10

Note: n.a=not available.

Price Discovery

The price discovery process at the farm level appears to be influenced predominantly by wholesalers who seem to wield considerable power over the price offered to farmers. The selling price to retailers, in turn, reflects the purchase price since wholesalers use the mark-up pricing method. According to the study, about 74% of wholesalers use the farm price as the reference price and add marketing costs in order to arrive at the wholesale selling price. Another 9% use the retail price as the reference price and mark down to account for marketing costs.

At the retail level, the wholesale price is predominantly used as the reference price in order to arrive at the retail sales price. Supply and demand conditions have a bearing on the actual market price and the big wholesalers normally are able to influence price movements by their sheer volume of transactions. Although the committee pricing system has been in existence since 1986, only 32% of retailers reported that they used the prices set by the committee as a guideline in determining their selling prices.

A simple grading system seems to be in existence with the breeds and weight at marketing point being the most important criteria. This is because broilers are deemed to be of optimal quality for marketing only within the 40-day period. Broilers that are kept longer tend to depreciate in quality.

Market Performance

Marketing Flow

An important pre-condition for the existence of market integration is for trade flows to take place between centres that are separated geographically. Centres that have trade relations with each other are likely to be integrated into a single market. In order to ascertain whether there are trade flows among the regional centres, analysis was carried out on the destination and supply sources of products in each centre.

It was found that all the centres studied had trade links with other regions, either as supplier or purchaser of broilers. However, the northern state of Kelantan has the unique position of not receiving supplies from other states, but it supplies broilers to the neighbouring state of Terengganu. In addition, two regional centres were found to be not supplying broilers to other centres, i.e., Perlis and Terengganu. However, they are linked in trade to other regions since they receive supplies from several other centres.

An interesting feature of broiler marketing in Peninsular Malaysia is the occurrence of cross-flows in the marketing flow of products in several states. For instance, while Johor receives supplies from Malacca, it in turn supplies to Malacca (Appendix I). This phenomenon may take place because some wholesalers from the respective states may have business arrangements to buy from other states rather than directly from suppliers in their own states. The same is true in the case of Perak where there is a two-way flow with Penang.

Kuala Lumpur's position as the main terminal market is apparent since it receives supplies from four states and supplies broilers to seven states, including the northern state of Penang and the southern state of Johor. Kuala Lumpur as the largest urban market is not a producing region but receives supplies mainly from neighbouring Selangor and the southern state of Johor.. The largest producing areas are in Johor, Perak and Negeri Sembilan.

Market Integration

Prior to testing for market integration, unit root tests were carried out to check for stationarity of the data series. The estimated test statistics for the prices in levels and first differences are reported in Table 11. These results indicate that all the time series are stationary after first differencing and the original series is said to be integrated of order zero or I(0).

Table 11: Results of the DF tests on Wholesale Prices, 1982-2001

Centre	Levels		First Differences	
	Constant Without Trend	Constant With Trend	Constant Without Trend	Constant With Trend
Perak	-1.2012	-2.0745	-5.8561*	-5.8434*
Johor	-1.0749	-1.9781	-3.7825*	-3.7746*
K. Lumpur	-1.1708	-1.9645	-3.7944*	-3.7845*
Malacca	-2.2200	-3.0099	-4.8889*	-4.8888*
Penang	-1.0511	-1.8437	-4.0074*	-4.7181*
N. Sembilan	-1.0402	-2.3132	-3.7987*	-3.7906*
Kedah	-0.9808	-1.7540	-3.5583*	-3.5465*
Kelantan	-1.0345	-2.1709	-4.2120*	-4.2026*
Pahang	-1.3877	-2.4033	-3.1638*	-3.1514*
Terengganu	-1.0616	-1.9698	-3.9815*	-3.9696*

**Significant at 5% level*

Cointegration analysis (Engle and Granger, 1987) was then carried out to test for market integration. Two models were estimated: the first model had the wholesale level in each of the centres as the regressand while the Kuala Lumpur central market price was the independent variable; the second model had the central market price as the regressand.

Results for the analysis of market integration are given in Table 12. When the regional price is the regressand, the estimated EMBED Equation.3 statistics in absolute terms exceed the 1% level; it can therefore be concluded that the estimated residuals are stationary, i.e., there are no unit roots. The reverse regression where the central market price is the dependent variable while the regional market prices are independent variables shows that the residuals for both the models without trend and with trend are stationary since the estimated EMBED Equation.3 statistics in absolute terms exceed the 1% level.

Therefore, it can be concluded that the regional and central market prices are cointegrated. This is confirmed by the high R2 and low Durbin-Watson statistics which are also an indication of cointegration. Since the price series are cointegrated in pairs using the Engle-Granger method, the broiler chicken market in Peninsular Malaysia can be said to be a highly integrated market. As price linkage is the central feature in integrated markets, this means that central market and regional market prices tend to move together over time.

Table 12: Results of Engle-Granger Cointegration Tests for Market Integration

Centres	Constant Without Trend[1]			Constant With Trend[2]		
	t-value	R2	d	t-value	R2	d
Model 1	Dependent : Regional Wholesale Prices					
	Independent : Kuala Lumpur Wholesale Price					
Kedah	-11.007*	0.9620	1.314	11.408*	0.9624	1.380
Kelantan	-9.7673*	0.9423	1.109	-9.344*	0.9462	1.030
Terengganu	-11.736*	0.9539	1.438	-11.456*	0.9571	1.387
Pahang	-12.116*	0.9721	1.515	-12.008*	0.9722	1.498
N. Sembilan	-12.808*	0.9676	1.480	-12.681*	0.9677	1.459
Perak	-11.114*	0.9707	1.358	-11.102*	0.9747	1.351
Johor	-11.907*	0.9696	1.467	-11.733*	0.9697	1.439
Penang	-13.390*	0.9726	1.693	-13.113*	0.9728	1.650
Malacca	-11.519*	0.9451	1.381	-11.660*	0.9452	1.404
Model 2	Dependent : Kuala Lumpur Wholesale Price					
	Independent : Regional Wholesale Prices					
Kedah	-11.187*	0.9620	1.332	-11.900*	0.9670	1.456
Kelantan	-10.072*	0.9423	1.146	-10.009*	0.9429	1.140
Terengganu	-11.949*	0.9539	1.460	-11.848*	0.9541	1.447
Pahang	-12.326*	0.9721	1.542	-12.599*	0.9733	1.587
N. Sembilan	-13.133*	0.9676	1.510	-13.330*	0.9692	1.559
Perak	-11.324*	0.9707	1.386	-11.561*	0.9711	1.421
Johor	-12.158*	0.9696	1.498	-12.387*	0.9708	1.539
Penang	-13.619*	0.9726	1.718	-13.676*	0.9732	1.730
Malacca	-11.693*	0.9451	1.394	-12.054*	0.9520	1.466

Notes:

1. The Engle-Granger critical values of the τ statistic at the 1%, 5%, and 10% levels for the model without trend are –3.90, -3.34, and –3.04 respectively.
2. For the model with trend variable, the critical levels for the model with trend are –4.32, -3.78, and –3.50

* Significant at 1% level.

Conclusions

An assessment of the broiler marketing system using elements of the structure-conduct- performance paradigm was carried out in this paper.

In terms of structure, generally the broiler market is found to be oligopolistic in nature with a few large buyers exercising considerable power over the broiler marketing process. This can be related to the high concentration ratio for most of the regional centres and effective barriers to entry, such as licensing requirements.

Policy-makers are often concerned about market concentration because of the belief that market power can hinder the efficient operation of markets. However, increasing concentration in the industry can both enhance and dampen market competition. In some cases, concentration can help to realize economies of scale, thus driving down production costs and thereby improving market efficiency. At the same time, high concentration can erode competition, leading to inefficient markets and higher prices both for downstream purchasers of inputs and for consumers. It is, therefore, necessary to weigh the economic benefits of concentration against the effects of the potential decrease in competition.

The present study found that the broiler chicken industry in Peninsular Malaysia is a highly integrated market. This indicates that the linkage between central market and regional market prices is continuously maintained by arbitrage behaviour since there is an equilibrium price relationship between them. Contrary to prior expectations that high concentration could erode competitiveness, this finding provides evidence that concentration can in fact help to realise economies of scale, thus driving down production costs and improving market efficiency.

As for market conduct, the main aspect covered is the pricing behaviour of the wholesalers. Since wholesalers have advantage in terms of access to market information, they are able to perform the price discovery process. As the majority of wholesalers purchase broilers directly from farmers, they are able to ascertain the current supply situation and likely changes in the future. Their close relationship with retailers also enables them to estimate the trends in consumer demand. With this knowledge on the demand and supply situation, they are able to set the purchase price at the farm level and mark up to set the selling price to retailers.

Farmers, however, are at a considerable disadvantage since they usually lack market information on current and future market conditions. Their scattered nature of production and considerable distance from the urban markets means that dissemination of market information has limited reach, in spite of the best efforts of FAMA's market information services.

In spite of the structural rigidities that are present, the existence of market integration at the wholesale level points to the fact that there is pricing efficiency in the broiler market. Therefore, there is efficiency in product movements among markets and this provides evidence of efficient information transmission at the wholesale level. The fulfilment of spatial equilibrium condition between the central market and all regional wholesale markets implies that there is market level efficiency. However, the same may not be true at the farm level.

The finding of spatial market integration has important policy implications. Since the markets are spatially integrated, the government could consider policy measures such as reducing or even withdrawing its efforts at price control in the market. Efficient product movements indicate that shortages in one market will be transmitted to the other markets; therefore, it may be unnecessary to impose price controls.

This study is able to provide some understanding on the relationship between the structural characteristics and market conduct on the extent of market integration of the broiler industry. Further research, however, is required to examine the impact of the broiler market structure on the welfare of farmers and consumers, particularly on incomes and prices, respectively. Besides, there is a need to establish the relationship between the structure and conduct of the market on selected performance measures such as technical efficiency, product development, growth and equity.

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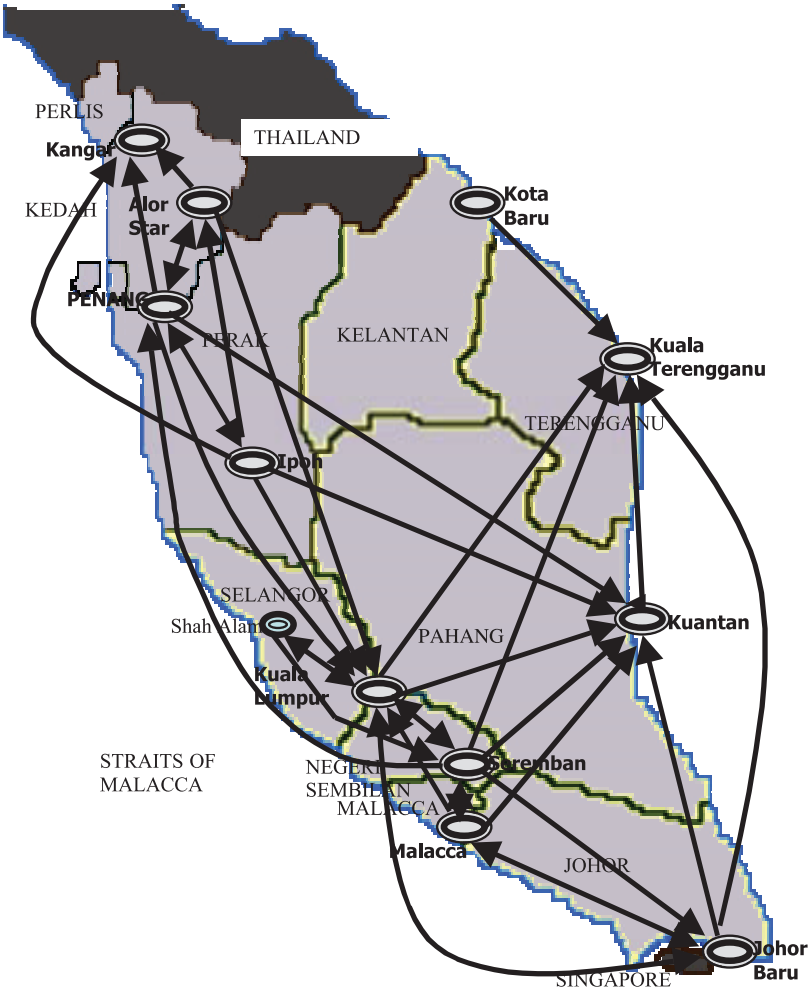
Appendix I

Marketing Flow of Broilers in Peninsular Malaysia



Source: Field Survey of Broiler Wholesalers in Malaysia, FAMA, 2003

Distribution Channel of Tropical Fruits in the Netherlands Market

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Abstract

Tropical fruits have started to gain acceptance in the European market. For instance, banana, papaya and pineapple are commonly available at the retail food outlets in Europe. However, only selected tropical fruits are distributed and the main source of these fruits are the Asian countries. With the increased awareness of the value of these fruits that is associated with healthy eating, the potential of fruits in general and tropical fruits in particular is huge. Subsequently, it is crucial to understand the structure of tropical fruit supplies in the European market in order to design appropriate channels that would reach the ultimate targeted market segments. Hence, the objectives of this paper are to explore the supply and distribution structure of tropical fruits in the Netherlands market; and to identify distribution channel structure of tropical fruits. In this study, 100 industry channel members were interviewed to gain first-hand information about tropical fruit supplies in the context of the Netherlands. The Netherlands is chosen due to its strategic location as a gateway to European markets. Content analysis of interview responses and percentage counts of quantitative data were included in the research results. Findings of this research indicated that tropical fruits are brought into the Netherlands through importers and wholesalers and then they are distributed to retail outlets such as supermarkets, retail stores and traditional open markets. In addition, the findings indicate that in order to access high-end consumer segments via supermarket chains, the quality of tropical fruits is important. The alternative channels via retailers and traditional grocers are also available at a lower margin. The findings from this research can serve as useful guidelines for tropical fruit producers and exporters to support their decision making.

Key Words:
Tropical Fruits, Distribution Channel, Netherlands Market, Importer, and Supermarket

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INTRODUCTION

World import of tropical fruits is expected to reach 4.3 million tonnes by 2010 of which 87% of this demand would come from markets in developed countries. Among the biggest markets for tropical fruit import are the European Commission (EC) markets, followed by the United States. Both the markets constitute a total of up to 70% of the import demand. In terms of market demand, United Kingdom is the largest market followed by France and Germany (Medium-term prospects, 2003). Even though the European Union (EU) acts as a single market, EU consumers' preferences might be different. For the EC markets, the Netherlands remains as the major European transshipment point or gateway for imported tropical fruits. Therefore, it is important to understand the tropical fruit distribution channel of the Netherlands. This information is useful to establish network contact in order to penetrate the EU markets. One of the immediate issues that requires attention is the understanding of foreign market distribution channel and industry characteristics in the Netherlands, especially in a country that serves as a gateway to European markets. Thus, an indepth understanding of the characteristics of the channel members and its operation of tropical fruit distribution would definitely enable better access for Malaysian growers and exporters into the Netherlands market. The objectives of this study are:

(i) to explore the supply and distribution of tropical fruits in the Netherlands market; and
(ii) to identify distribution channel structure of tropical fruits in the Netherlands market.

LITERATURE REVIEW

Role of Distribution in Marketing

The success of a company often depends on its ability to manage the marketing activities. McCarthy (1964) has simplified these marketing activities into four broad groups of 4 Ps: product, price, place and promotion. According to Bennett (1995), marketing is a process of planning and executing the conception, pricing, promotion, and distributions of ideas, goods, and services to create exchanges that satisfy individual and organizational goals. Today, marketing must be understood as a process of satisfying consumers' needs (Gronroos, 1995). With this customer-driven approach, the products are conveniently accessible to the consumers (Chekitan & Schultz, 2005). Hence, distribution ensures that consumers find their products in proper quantities at the right time and place.

Marketers have realized that a good product alone does not suffice to motivate customers to purchase it unless they could buy the product whenever and wherever they want it. Since few producers sell their products directly to the final users, companies use intermediaries to bring the products to the market. Intermediaries or channel members work together to deliver superior value for the final customers (Hannon, 2005; Liker & Choi, 2004). Consequently, the company's distribution strategy affects other marketing decisions such as the company's targeted price of the product, sales force and promotion efforts.

Distribution Channels

Stern and El Ansary (1995) define marketing or distribution channels as a set of interdependent organizations involved in the process of making a product available for consumption. To deliver superior products to consumers, channel members must have good relationships with each other to optimize the performance of the entire system (Porter, 1996). For instance, Coca-Cola's dedication to working closely with channel members has earned Coca-Cola a 68 percent share of the U.S. soft drink market (Lorge, 1998).

Channel members may include retailers, wholesalers, agents and direct distributors who operate through the Internet and mail order. Since marketing is defined as an exchange process (Jain, 2004), a company must determine the type of channel which best meets the seller's objectives and distribution needs of customers. Short distribution channels involve few intermediaries while long channels have many intermediaries working to move goods from producers to customers. For consumer goods, the channels typically have two levels, leading from producers to wholesalers and retailers. Regardless of the differences in distribution channels, marketers must convince their members that they can succeed better by working together as part of a cohesive value delivery system (Grossman, 2004).

A key goal of a distribution channel is to develop deep, enduring relationships with all channel members that affect the success of the firms' marketing activities (Liker & Choi, 2004). The relationship aims at building mutually satisfying long-term relationship with key parties – customers, suppliers, distributors and other marketing partners. Many managers realize that the action taken by one channel member can influence the performance of others (Johnson & Pyke, 2000). The costs of poor coordination can be extremely high since inefficient use of warehouse resources, high transportation costs and high inventories are examples of variables that can impede a company's distribution channel. The number of variables increases as the product moves from consumer to grocery store to distribution centre to factory, a phenomenon that is called bullwhip effect (Baganha & Cohen, 1998). Thus, Kulp, Ofek and Whitaker (2003) highlight the

need of better coordination of members in order to enhance better information flow and generate value in the distribution channel.

Progress in information technology has set the stage for a better distribution strategy. For instance, Mal-Mart has forced many manufacturers to improve their management of inventories through the use of technology and the Internet. Innovation such as electronic data interchange (EDI) makes information easily available to marketing partners and the speed with which it is available has radically reduced inventories and increased customer services (Moinzadeh & Aggarwal, 1997; Lee & Whang, 1999). Companies see themselves as part of a chain to gain competitive edge by improving the long-term performance of each individual company and channel as a whole. The strategic competitive advantages to be gained by adopting an effective approach to distribution strategy is widely recognized (Mentzer, et al., 2001).

Distribution Channel of Fresh Produce in Europe

Distribution channels are influenced by the type of product, type of consumer, and size of business. Several studies have been conducted to analyze the distribution channels in Europe. Grant (1995) noticed that the supply industry of European fresh produce is highly fragmented with three common channel members operating at the primary supply and distribution levels. First, marketing boards such as Pear Marketing Board constitutes an important part of EU fresh produce import trade. Second, integrated fruit companies such as Fyffes, Chiquita and Dole are large international suppliers that emphasize on added-value, branded products with high degree of vertical integration. Meanwhile, specialist importers make up the largest share of fresh produce supply operators in Europe. These players have strong presence in wholesale markets and take the most number of risks as the supply chain shortens and becomes increasingly competitive.

Neves and Neves (1999) found that changes in the orange distribution channels in Europe are threatening, but at the same time the changes can bring opportunities to companies. The study shows that the orange supply chains have changed due to consumers' needs and desires and the increasing number of innovative products launched by the food industry. Hence, channel members should be segmented to satisfy very specific needs of retailers, customers and others. Similarly, Zylbersztajn and Farina (1998) proposed the recognition of market segments and their respective needs, and the organization of vertical coordinated chains. In Europe, 80 percent of all fresh produce is sold via supermarket chains and discounters. These products are pre-packed and ready for retail outlet shelves and cooling counters. Since these retailers do not get the fruits themselves, specialized fruit trading houses import most of the fresh produce into European countries.

Research on the European distribution channel reveals the need for channel members to adhere to several regulations and industry standards. For instance, since the establishment of the European Union (EU) as a single market, imports from non-EU countries are permissible only at the external borders of the EU. Hence, there is a need for specialist importers since these players are equipped to handle incoming fresh produce in a very efficient manner, with temperature controlled storage, logistics, and transportation (HYPERLINK "http://www.austrade.gov.au" http://www.austrade.gov.au). In addition, channel members that supply fresh produce in Europe must follow the main industry standards which include Hazard Analysis Critical Control Point (HACCP), EUREPGAP, and produce marketing standards. EUREPGAP refers to Euro-Retailer Produce Working Group (EUREP) and Good Agricultural Practice (GAP). EUREP represents leading European food retailers and has developed a framework for Good Agricultural Practice, called EUREPGAP.

Distribution Channels of Fruits in the Netherlands

In the GfK Consumentenpanel Nederland, Frugi Venta Annual Report of 2005 (report on consumer panel for fruit and vegetables purchases), it is made clear that supermarket chains are the main distribution channels of fruit and vegetables. The total volume traded in 2005 was € 3.7 billion (refer to Table 1). Out of this, € 2 billion is traded through supermarket chains (54%), followed by the daily or flea/open market (32.5%) and green grocer or fruit and vegetables shops (13.5%). Table 2 shows the share of volume in the purchase of fresh vegetables and fruit for individual sales channels in the Netherlands. The distribution of fresh fruits is mainly through the supermarket chain followed by the open market. Green grocer and home delivery enjoy relatively smaller shares. Therefore, to penetrate the Netherlands market it is crucial to access the supermarket chains.

Table 1: Value of Selescted Market Segments in 2005

Market Segment	Euro (in Billion)	Percentage (2005)*	Percentage (Average)
Supermarkets (5000 Outlets)	2	54%	65%
Daily/ Flea Market	1.2	32.5%	20%
GreenGrocer/Shops/Fruit/Vegetable Stalls	0.5	13.5%	15%
TOTAL	3.7	100%	100%

*2005 percentage is calculated based on the share of volume of three selected market segments.
Source: Adapted from GfK Consumentenpanel Nederland, Frugi Venta Annual Report 2005, page 10.

Table 2: Share of Volume in Purchases of Fresh Fruit and Vegetables for Individual Sales Channels in the Netherlands

	Vegetables			Fruit		
	1999	**2002**	**2005**	**1999**	**2002**	**2005**
Supermarket	73%	77%	84%	63%	68%	75%
Greengrocer	11%	8%	5%	12%	9%	7%
Home delivery	1%	1%	1%	3%	2%	2%
Open-air market	11%	10%	6%	18%	16%	12%
Other	4%	4%	4%	4%	5%	4%
TOTAL	100%	100%	100%	100%	100%	100%

Source: GfK Consumentenpanel Nederland, Frugi Venta Annual Report 2005, page 10.

European Union Requirements of Tropical Fruits

The European Union is a custom union that has a common tariff for third countries importation into EU markets. In the fruit and vegetable sector, EU has a common market organization (CMO) that is involved in policy mechanisms and trade agreements to stabilize markets (Common Market Organizations, 2001). EU's requirements for foodstuffs export are high especially in terms of food quality and safety. Several mandatory legislative requirements include general good law, certificate of conformity, maximum residue limits and phytosanitary regulations and plant protection.

European Food Safety Authority was established in 2002 (European Food Safety Authority homepage HYPERLINK "http://www.efsa.europa.eu/EFSA" http://www.efsa.europa.eu/EFSA). It underlines procedures in food safety, other general principles and requirements and provisions on the traceability of food. The General Food Law was enforced in January 2005. A Certificate of Conformity is required for all import consignments of fresh fruits and vegetables from countries outside of the EU. The Maximum Residue Limits (MRLs) for pesticide residues is the EC Marketing Standards requirements. A Pesticide Residue Analysis report should accompany each consignment and the labs providing the report must be accredited or ISO approved. The International Plant Protection Committee (IPPC) sets the International Standard for Phytosanitary Measures (ISPM) in order to ensure that the imported agricultural goods are free from plant diseases or insects. It also prevents the EU crops from contact with phytosanitary harmful organisms that might be transferred from the imported consignments. Other measures of fruit import include firmness of the fruit, freshness, color/appearance, packaging presentation, uniformity in size, free from damage and abnormal external moisture.

Recently the EUREPGAP certification is required especially for supply to supermarket chains and high-end retail outlets. EUREPGAP is a common standard of farm management created by technical representatives of several European supermarket chains, with input from major suppliers. It consists of standard processes of the product to be applied before the seed is even planted until the time it leaves the farm. This is to ensure that the best practice in systematic and consistent approaches is applied throughout the entire agriculture chains from seed selection, farming, chain of processing, packaging and distributing channels until the products are delivered to the end consumers. This is accomplished through standardization of procedures and compliance criteria.

It is believed that in 2008, EUREPGAP certification is obligatory in order to supply to EU markets. EUREPGAP provides widely accepted standards and procedures for the global certificate of Good Agriculture Practice (GAP). In September 2007, EUREPGAP changed its title and logo to GLOBALGAP. This change reflects its expanding role in establishing Good Agricultural Practices, based on mutual agreement between multiple retailers and their suppliers (EUREPGAP homepage, GLOBALGAP homepage).

METHODS

A combination of focus group and industry interviews were carried out to gather data for this study. At the beginning, a focus group study based on purposive sampling technique was conducted among a group of Malaysian fruit suppliers and exporters who are involved in exporting fruits to the EU including the Netherlands. Eight fruit suppliers and exporters and five government officials who are involved in the marketing of tropical fruits participated in this focus group on a voluntary basis. These people were invited because of their active involvement in tropical fruit marketing, distribution and export. The focus group identified problems and issues in the tropical fruit industry particularly the exportation of fruits to the European market. Findings of the focus group discussion served as the basis for developing a structured questionnaire to be used in industry interviews.

Industry interviews were carried out among the Netherlands importers/re-exporters, distributors, wholesalers and retailers to examine the characteristics of tropical fruit distribution activities and to determine the distribution structure of the selected tropical fruits. There are about 400 importers of fruits and vegetables in the Netherlands (Holland Fresh Guide 2005/2006). In this study, 100 fruit distribution channel members (i.e. importers, exporters, distributors, wholesalers and retailers) were purposively chosen as sample for the study. The researcher planned to involve 50 importers/exporters/distributors and 50

retailers or a few more retailers due to the nature of the environment where the retailers outnumber the importers/exporters/distributors. Ultimately, data was collected from 47 importers / exporters / distributors and 53 retailers (refer to Table 3). In addition to interviewing these business owners or managers, observations were made of the distributing facilities, storage of tropical fruits and traditional open markets displays of tropical markets to understand the daily functions of tropical fruit distribution and market spread of tropical fruits within the local community. This research approach would generate more information that is useful to draw an explanatory framework for the tropical fruit distribution structure in the Netherlands market. Table 3 shows the composition of the sample respondents and the key information that were gathered from them. The study took approximately six months to complete the secondary and primary data collection, data analysis and reporting. Importers, exporters, distributors and wholesalers were grouped in one category due to their overlapping function. Usually, importers also perform as exporters that re-export their imported fruits and vegetables to other EU countries. The same importers also take on the role of distributors and wholesalers that encompass the distribution function within the Netherlands.

Table 3: Characteristics of the Research Sample

Sample Group	Characteristics
Importers/Exporters/Distributors/ Wholesalers (n~47)	• Handling of tropical fruits • Type of tropical fruits • Sourcing of tropical fruits • Price indicators • Preference of tropical fruits • Distribution facilities • Volume estimation • Mode of payment • Handling of damaged goods • Regulatory procedures involved in tropical fruit distribution • Observation photos
Retailers (n~53)	• Type of retailers (supermarket chain, retail outlet and traditional grocer) • Type of tropical fruit distribution • Packaging and presentation of tropical fruits • Promotion activities • Estimation of pricing and volume • Observation photos

RESULTS AND DISCUSSION

Sample Characteristics

A total of 100 field interviews and observations were carried out (refer to Table 4 for the breakdown of the respondents). Large scale importers are channel players that directly import fruits and vegetables from overseas. The large scale importers do not deal with retailers as they mainly supply to wholesalers. Eleven large scale importers that operate in the Netherlands as well as Europe were interviewed. Importers and wholesalers form the second tier of players in the fruit and vegetable distribution channel. These importers and wholesalers perform both functions of importing fruits and supplying to other retailers in the Netherlands and EU. A total of 35 importers and/or wholesalers were interviewed. Large scale retailers are retailers that operate retail chain and they purchase tropical fruits for their entire retail outlets. These retailers usually have their own private distribution center or warehouse. Twelve large scale retailers consisting mainly of supermarket chains were included in this study. Meanwhile, retailers are privately-owned retail outlets or mini-markets. Since retailers are the largest group in the distribution chain, 38 retailers were interviewed based on voluntary participation during the period of data collection. Traditional open markets were also included in order to understand the entire distribution network in the Netherlands market. Other than interviews to collect data, field observations were carried out on four open markets. Open markets refer to traditional markets that operate on the street without a permanent store. Temporary outlets are set up on a weekly basis where retailers display fruits, food and other products such as clothing and kitchenware along the street for sale.

Table 4: Sample Category and Size (N = 100)

Sample Category	Sample Size
Large Scale Importer	11
Importer/Wholesaler	35
Large Scale Retailer	12
Retailer/ Small Retailer	38
Open Market	4

Fruit Supply and Distribution Size

Tropical fruits available in the Netherlands are usually imported from South America, Africa and Asia. These countries include Brazil, Colombia, Surinam, Mexico, Costa Rica, Thailand, Indonesia, Vietnam, the Philippines and Malaysia. From the results displayed in Table 5, some tropical fruits such as starfruit, pomelos and rambutans are also imported to the Netherlands. However, mangosteens, dragon fruit, durians and jackfruit are not very common. In terms of size of the fruit distribution, there are different sizes for different type of fruits. Table 6 presents the common distribution sizes of the selected tropical fruits.

Table 5: Tropical Fruit Distribution and Sources of Supply

Type of Fruits	Frequency count of distributor that distribute the fruits	Source of Supply (Country Base)
Starfruit	33	Malaysia, Taiwan, Israel (very small quantity)
Dragon fruit	24	Vietnam, Thailand, Malaysia (very small quantity)
Papaya	50	Colombia (cheaper price), Brazil, Thailand, Ecuador, Surinam, Malaysia
Pineapple	41	South America, Costa Rica (Dulce Gold Pineapple), Brazil, Ecuador, Mexico, Ghana, Spain, Malaysia
Mango	44	South America, India, the Philippines, Thailand, Pakistan, Mexico, Mali, Carribean, Peru, Malaysia
Pomelo	31	China, Thailand, Israel, Malaysia (price too high)
Rambutan	31	Thailand, Indonesia, Malaysia
Mangosteen	28	Thailand, Indonesia, Africa, Malaysia (Hardly seen in the market)
Durian	18	Thailand, Malaysia, Africa
Jackfruit	17	Malaysia, Thailand (in pre-packed form) Depends on demand, hardly seen in the market

Table 6: Tropical Fruit Consumption and Distribution Size for European Market

Type of Fruits	Frequency Count (based on the 100 responses)	Distribution Size (the size that wholesalers distribute to retailers)
Starfruit		• 150gm per piece
Decorative	15	• 20 pieces/ box
Consumption	4	• 1 box 3kg
Decorative & Consumption	4	• <150gm per piece
		• 24 pieces/ box
		• 1 box 3.5kg
Dragon fruit		• 500gm/piece
Decorative	1	• 10 pieces/box
Consumption	11	• 1 box 5kg
Decorative & Consumption	2	
Papaya		• <800gm/piece
Decorative	2	• 7-9 pieces/box
Consumption	18	• 1 box 6kg
Decorative & Consumption	-	
Pineapple		• >1.5kg /piece
Decorative	3	• 6-8 pieces/box
Consumption	13	• 1 box 11-12kg
Decorative & Consumption	3	
Mango		• >500gm/piece
Decorative	2	• 6 pieces/box
Consumption	15	• 1 box 4kg
Decorative & Consumption	1	• 500gm/piece
		• 8 pieces/box
		• 1 box 4kg
Pomelo/Citrus grandis		• 1-1.25 kg /piece
Decorative	-	• 9 pieces/ box
Consumption	12	• 1 box 10 kg
Decorative & Consumption	-	
Rambutan		• >30gm/piece
Decorative	-	• 12 pieces/small package
Consumption	15	• 4 packages/box
Decorative & Consumption	-	• 1 box 2kg
Mangosteen		• <100gm/piece
Decorative	-	• 20-24 pieces/box
Consumption	13	• 1 box 2kg
Decorative & Consumption	-	
Durian		• Frozen Fresh Durian
Decorative	-	• 454gm per package
Consumption	12	• >1.5kg each
Decorative & Consumption	-	
Jackfruit		• >15kg/piece
Decorative	-	• 1 piece / box
Consumption	9	• 1 box 15-18kg
Decorative & Consumption	1	

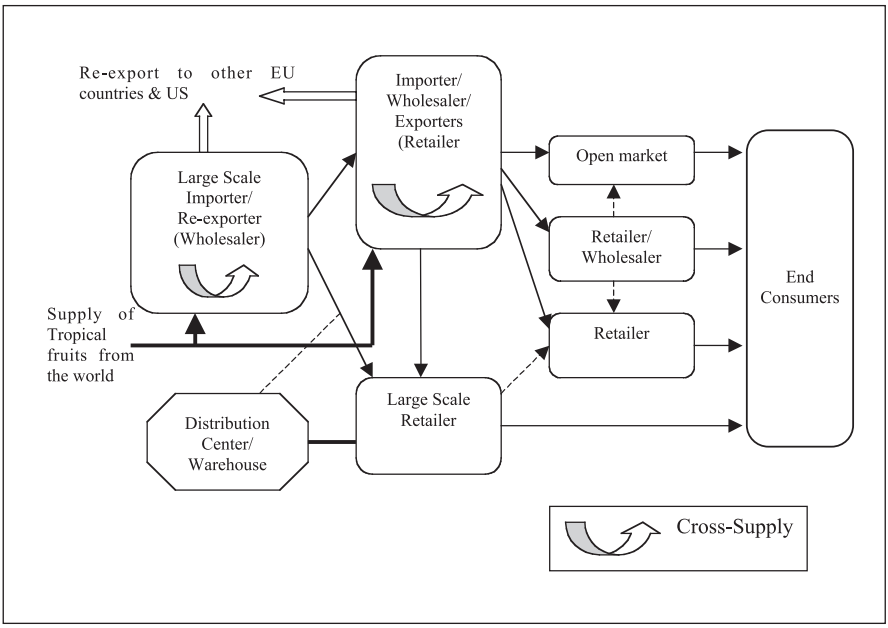
Distribution Channel Structure of Tropical Fruits in the Netherlands

Overall, the distribution channel in the Netherlands is well-developed and well-connected. With reference to Figure 1, the channel members include large scale importers, wholesalers, and exporters. These channel members are the big players in fruit and vegetable distribution in the Netherlands as well as European markets. They usually hold multi-roles from importing fruits and vegetables from various parts of the world, sourcing from South America, Asia and also local suppliers to re-exporting to other European countries and redistributing them throughout the Netherlands. In their distribution network, they supply to other importers, wholesalers, exporters and sometimes retailers (especially large-scale retailers like supermarkets).

In particular, large scale importers are channel players that directly import fruits and vegetables from overseas. The large scale importers do not deal with retailers; they mainly supply to wholesalers and re-export the imported products to other EU countries. They are also called wholesalers by buyers in EU countries. In the Netherlands, they are called exporters because they export the products to EU countries. Thus, in the Netherlands business environment, a player usually performs multiple roles in the distribution channel.

Importers and wholesalers are the second tier players in the fruit and vegetable distribution channel. These importers and wholesalers perform both functions; they import fruits and act as wholesalers that supply the produce to other retailers in the Netherlands and EU. Since they supply the fruits to other retailers in the EU, they also act as exporters. As mentioned earlier, multiple functions are common among distribution channel members. For example, in cases where individual buyers can also come to the premises of these wholesalers for substantial purchase meaning they also perform as retailers.
Large scale retailers refer to those that operate retail chains and they purchase tropical fruits for their entire retail outlets and usually have their private distribution center or warehouse. Retailers are individual retail outlets or mini-markets operated by private owners. Open markets refer to traditional markets that operate on the street without permanent store. Temporary outlets are set up on a weekly basis where retailers display fruits, food and other products such as clothing and kitchenware along the street for sales. Ultimately, tropical fruits are purchased by the end consumers either at open markets, retail outlets or large-scale supermarket chains.

Figure 1: Overview of the Netherlands Channel of Tropical Fruit Distribution



Large-Scale Importers and Wholesalers

In the group of importers and wholesalers, two significant segments are identified: large scale importers and importers/wholesalers. The first group is the large scale importers. Examples of large scale importers are as follows:

(1) Aartsenfruit
(2) Agro Fair
(3) Bud Holland
(4) De Groot International B.V.
(5) FTK Holland
(6) Hispa Fruit
(7) Natures Pride
(8) OTC Holland
(9) Stacy Food Group
(10) Valstar Group

This group of channel members plays a key role in fruit distribution throughout the Netherlands and the European market. As shown in Figure 1, large importers import fruits from various fruit exporters and some even directly contact the fruit farm operators and fruit and vegetable wholesale centers to ensure that they enjoy a certain targeted margin. Farm operators refer to business entities that operate or manage their own farms. Therefore, the pricing of the fruits is at farm level. Fruit exporters are exporters outside of the Netherlands. These exporters export various products including tropical fruits to the Netherlands' large scale importers (re-exporters). In the international market, there are also wholesaler centers. In each, a substantial number of wholesalers function collectively as a

distribution center. In the Netherlands, large-scale importers can deal directly with these wholesaler centers to source their products including tropical fruits.

The main customers of the Netherlands large scale importers are big buyers such as other importers/wholesalers in the Netherlands, importers/ wholesalers in Europe and large scale retailers. To supply to this group of importers, fruit products must be accompanied with the EUREPGAP certificate, especially in 2008, where the EUREPGAP requirement becomes obligatory. EUREPGAP was set up in 1997 by the Euro Retailer Produce Working Group and eventually developed into a partnership between agriculture producers and their retail customers. EUREP is a private body that sets voluntary standards of agricultural products from around the world. EUREPGAP provides widely accepted standards and procedures for the global certificate of Good Agriculture Practice (GAP). It consists of standard processes of the product before the seed is even planted until it leaves the farm.

Based on the interviews conducted with the large scale importers, the first criterion that their clients looked for when purchasing fruits are the standards and procedures set out in EUREPGAP (refer to Table 7). This is because their clients require this certification. In order to fulfill their clients' requirements, they have included this as the key criterion in the buying decision. Large importers are usually not involved in re-packaging since all imported products are sold in containers and pallets. Mixed pallets may be supplied upon request by the customers.

Table 7: Feedback from Large Scale Importers (n = 11)

Statements	Summary Remarks
Import/export activities	Actively involved in importing and exporting activities of fruits and vegetables. Source from the world and distribute throughout Europe. General turnover is more than €100 million.
Decision making criteria of tropical fruits	Quality, price and consistency of supply
Facilities	Have their own cold rooms and cold-storage vehicles.
Mode of payment	Letter of credit via IBAN (International Bank Account Number) Direct bank transfer and Bank guarantee for suppliers
Credit term	Usually within _ month to 1 month Longer credit term is given to supermarkets as payment is secured. The same credit term is received from suppliers.
Company policy on defective goods	The common practice is to take the photo of the defective goods and send credit note to the suppliers *or* accept the fruits and sell at a lower price.
Service	Deliver the ordered fruits to their customers. Rent out the storage space (warehouse space) for their customers.
Import requirement	EUREPGAP Certification Compliance to all EU rules and regulations Brand name is not an issue except for well-established brand names such as Chiquita Banana and Dole pineapple.
Packaging requirement	Standard container and pallet size Does not involve itself in re-packaging and pallets are ready to be transported to the customers. Mixed pallet is provided according to customers' requirements.
Promotion	Use push strategies that usually highlight the fruits that they carry and service provided. Do not promote specific country products. Promotion of the specific country products depends on the exporting country. For example, the Thai government and exporters support products with posters and various promotional materials.
Malaysian products	Receive minimum materials about Malaysian products. The only exception is starfruit. The companies import starfruit mainly from Malaysia.
Collaboration potential	Interested to collaborate with Malaysian exporters and farm operators; however, this depends on the quality, price and supply consistency No general collaboration terms, this depends on specific negotiation.

Importers/ Wholesalers

The second group of tropical fruit network is the importer/wholesaler. These channel members distribute fruits and vegetables within the Netherlands markets as well as neighboring European countries such as Germany, Belgium and France. They import fruits from foreign exporters as well as suppliers from the Netherlands large scale importers. Their main customers are retailers in the Netherlands and European countries. To supply to this group of importers, fruit products must possess minimum EU requirements (i.e. residue analysis). EUREPGAP certificate is an added advantage but not obligatory; however, it may be the basic requirement in the near future.

According to these companies, their clients' criteria in fruit purchasing decisions are price and quality. As shown in Table 8, wholesalers try to avoid any re-packaging work as labor cost is extremely high in Europe. However, minor re-packaging is sometimes performed to meet their clients' packaging requirements. Some customers require the ready-to-sell packaging. Small mixed-packaged fruits are also provided for specific customers such as hospital fruit stores.

Table 8: Feedback from Importers and Wholesalers (n = 35)

Statements	Summary Remarks
Distribution activities	Involved in distributing fruit products to the local retailers as well as to the other European countries especially Germany, Belgium and France. Mainly source the products from foreign exporters. Generally, the turnover is below €100 million.
Decision making criteria of tropical fruits	Quality, price and consistency of supply
Facilities	Majority own cold rooms and cold-storage vehicles.
Mode of payment	Letter of credit via IBAN (International Bank Account Number). Direct bank transfer, via cheque or cash Bank guarantee is provided for direct source of foreign exporters.
Credit term	Usually within _ month to 1 month Longer credit term is given to supermarket as payment is secured. The same credit term is received from suppliers.
Company policy on defective goods	The common practices include: • taking photo of defective goods and sending credit note to suppliers; • returning to the suppliers; writing off; and selling at a lower price.
Service	Deliver the ordered fruits to their customers. The mode of delivery is organized in such a way to be as direct as possible, sometimes directly from port to the customers' venue.

Import requirement	EUREPGAP Certification is a plus but sometimes not obligatory. In 2008, EUREPGAP Certification may become compulsory. Must comply to EU rules and regulations. Brand name is not an issue except for well-established brand names such as Chiquita Banana and Dole pineapple. Supply to supermarkets has more strict requirements.
Packaging requirement	Do simple re-packaging and bulk breaking to supply to small retailers. Excess fruits may be supplied to open markets at minimum price or at cost. Some retailers require the fruits packaged in ready-to-sell form.
Promotion	Do not invest in promotion of specific country products. Traditionally depends on the established network of distribution. The original source of fruits must invest in promotion.
Malaysian products	Receive minimum materials about Malaysian products. The only exception is starfruit. Starfruit imports are mainly from Malaysia. Some importers/wholesalers that have established relationship with Malaysian exporters may carry more Malaysian fruits.
Collaboration potential	Few companies are interested to collaborate with Malaysian exporters; however, it depends on the quality, price and consistency of supply. No general collaboration terms, this depends on specific negotiation.

Large Scale Retailers: Supermarket Chains

One of the most important outlets that sells fruit and fresh produce to the customers is the supermarket. In the Netherlands, supermarket chains are very popular since they are found everywhere and offer better products at competitive prices. Besides Mediterranean fruits, tropical or "exotic" fruits are also popular items found on the shelves of supermarkets. Through observations, all the premises are complete with cold rooms to store the fresh produce. Examples of large scale retailers are Albert Heijn, C1000 Schuitema, ALDI and Sligro.

Albert Heijn is considered to have the largest market share in the country. It operates the stores in several formats; everyday supermarket, the larger Albert Heijn XL, convenience store, and the Internet delivery service Albert.nl. Albert Heijn stores are full service supermarkets and are known for their focus on

quality. From observations, starfruit supply comes from Malaysia, whereas bananas and pineapples are from South America, mainly from the branded Dole and Chiquita. The tropical fruits on sale here include Dole's pineapples (Costa Rica) which are priced at €5.85 each and papayas from Brazil. Interestingly, Albert Heijn makes an effort to promote these products as "exotic" fruits through brochures and advertisements.

C1000 Schuitema is part of Schuitema, a retail and wholesale company. C1000 is now part of Ahold Supermarket Group which includes Albert Heijn since it holds 73% interest in Schuitema. Tropical fruits such as bananas and pineapples are also available in these supermarkets. Besides coming up with its own brand C1000, branded fruits such as Dole pineapple and Chiquita banana are also available. C1000 also does its own packaging. Through technology innovation, C1000 supermarket chain is rolling out a new generation of self-scan checkouts. Customers simply place their items on the conveyor belt, which are transported through a scanner portal, where a device will read the barcodes, regardless of their position. By eliminating individual scanning, it accelerates the checkout experience.

ALDI is considered as the world's leading discount retailer. With a modified concept, ALDI has developed a hybrid that until now has been regarded as opposites: discount and convenience. With over 5000 stores all over the world, ALDI focuses on food-to-go and convenience products, including chilled drinks, sandwiches and fresh fruit - and all these without breaking the rules of efficient discounting. All products whether baked beans or freshly cut flowers, biscuits or daily delivered fresh fruit and vegetables, are sourced from the best suppliers. Tropical fruits such as bananas and pineapples are available in this outlet. Among the tropical fruits available include papaya (Brazil) which is priced at €5.95 per piece, pineapple (Costa Rica) at €5.50 per piece, mango (South Africa) at €0.95 per piece and pomelo (China) at €2.50 per piece. The fruits are sold as they are, in the original packaging. Promotion on tropical fruits is done in the store, that is the point-of-purchase (POP).

Sligro is a wholesale outlet (entrance is by registered pass only). Most of the customers are organizational consumers such as restaurants and cafeteria (39%), medium businesses (22%) and small retailers (6%). Currently, Sligro has 38 self-service stores and food contributes 90% of its sales. Its main competitor is Makro. In Netherlands, Sligro has more sales than Makro and the average Sligro store resembles a hypermarket, whereas Makro looks more like a warehouse. Branded fruits like Dole and Chiquita are also sold. Other tropical fruits include Malaysian starfruit, Brazilian melons, Chinese pomelos and Thai rambutans.

Small Retailers

Retailers in the form of mini markets and grocery stores are scattered throughout the Netherlands. They serve the local communities at convenient locations and sell the produce in smaller quantities for household consumption. A typical mini market usually carries various ranges of household items such as canned food, vegetables, fruits and dried items. Since tropical fruits are imported items, they are considered as luxury products. Therefore, consumer purchases of tropical fruits are relatively in smaller amounts. The retailers require fruit products that are packaged in a ready-to-sell form. As labor cost is high, retailers also avoid doing re-packaging activities.

Open Markets

Open markets are traditional areas for selling dried and wet products. This type of open market usually operates in the morning or evening on a regular basis. For example, Afrikaaderbuurt Open Market operates twice per week. The products sold in open markets are of lower quality and price. Excess supply is usually distributed in the open markets with minimum pricing. Only few typical tropical fruits such as bananas, pineapples, mangoes and papayas are commonly displayed and sold. Few stores sell dragon fruit. Starfruit, pomelos, rambutans, mangosteens, durians and jackfruit are not available in the open markets. Store owners usually get the supplies from local wholesalers and sell them on cash basis. No specific packaging is required.

For pineapple, a special cutting machine is required. The machine is supplied by the suppliers to the store owners. When consumers purchase the pineapple, the cutting service is provided so that the pineapple is in the ready-to-eat form.

CONCLUSIONS

The entire distribution channel of tropical fruits in the Netherlands is complex. It is identified that channel members such as importers and wholesalers perform multiple functions. For example, importers also play the roles of wholesalers by distributing the fruits to the retailers in the Netherlands market and also as exporters of the fruits to other EU wholesalers. In order to access the high-end consumer market, large scale importers and large scale retailers (i.e. the supermarket chains) play a major role. For Malaysian exporters that are targeting the high-end market segment and aiming at higher margins, they should actively approach large scale importers because this channel member is the key supplier to supermarket chains, not only in the Netherlands but also to other EU markets. In addition, they are the agents that introduce new fruit products to the supermarket chains.

However, high standard compliance is required in order to penetrate this market segment. This market segment emphasizes on quality and various compliances such as GLOBALGAP requirements. GLOBALGAP (formerly known as EUREPGAP) is an internationally used management system for Good Agricultural Practice (GAP). GLOBALGAP is relevant for suppliers of agricultural products to the participating European supermarkets. Ability to supply to this segment would secure a significant share of the market and also sales. Furthermore, the Netherlands provides opportunities for good access to the European countries since the fruits are transported to the Netherlands and re-exported to Germany, France, the UK and other European countries.

To benefit from this market segment, producers and exporters of tropical fruits need to establish close collaboration. Producers of tropical fruits must impose high quality control at farm level to ensure fruit quality. Exporters have to cooperate with the Malaysian distributors and partially invest in distribution facilities to increase the efficiency of the fruit distribution process. Exporters also need to provide market information that they have gathered from the Netherlands and EU markets to the Malaysian producers and distributors. Moreover, research and development related to tropical fruits should be extensively conducted to increase fruit quality.

For Malaysian suppliers competing in the international market particularly in Europe, they must enhance their product quality and make their prices competitive. In addition, more promotion and marketing activities are needed especially promotions in the supermarket chain stores which serve as a pull factor to attract end users. Finally, Malaysian suppliers need to be able to sustain their supplies of tropical fruits in order to attract the big foreign buyers.

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