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Supermarkets in Malaysia's Food Supply Chain:  
Influence on Traditional Supply Chain and Implications for Contract Farmers  
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*Urbanization, growing incomes and changing diets have facilitated the supermarket revolution in Malaysia. Contract farming has been used as a tool to incorporate farmers into the modern supermarket supply chain, mediated by Malaysia's Federal Agricultural Marketing Authority (FAMA). This study examines the influence of supermarkets on Malaysia's traditional food supply chain, and the emergence of the supermarket-farmer relationship with smallholder farmers through contract farming, as a result of the new supply chain. Based on an extensive literature review and interviews with FAMA and supermarket representatives, this study finds that the supermarket dominance is present but the relationship between supermarkets and farmers is distant and indirect. While FAMA's contract farming is a useful effort to increase farmer involvement in the supermarket supply chain, there has been little participation from supermarkets due to their efficient network of suppliers that can adhere to their high quantity and quality demands better than small farmers can.*



## 1. Introduction

The Malaysian food retail industry has experienced big changes with the advent of supermarkets. Like developing countries in Latin America, Africa and Southeast Asia, Malaysia presented ideal conditions for the proliferation of supermarkets in the late 20<sup>th</sup> century: the intrigue for transnational corporations to invest in developing regions, aided by rapid urbanization that led to income growth, changing diets and greater availability of infrastructure for supermarkets. The diffusion of supermarkets has been described as “waves”, starting with Latin America in the 1980s. Beginning as niche markets, 10-20 percent of national sales were attributed to supermarkets during that time period (Reardon et al. 2003). This number grew significantly in 2000 as 50-60 percent of national food retail sales in Latin American countries were attributed to supermarkets. Reardon et al. (2003) assert that a similar pattern occurred in Southeast Asia, and the same has showed in Africa, with 1700 supermarkets catering to 35 million people.

Malaysia was one of the first countries in the Southeast Asian region where supermarkets proliferated. Investments in supermarkets from transnational corporations were assisted by policy changes in distributive trade, although with several clauses, among which was that a percentage of shareholders must include *bumiputera* or natives (Sieh Lee 2013). Changes to food retail have affected the traditional food supply chain and food procurement. Reardon et al. (2003) explain the modifications to the system, which were affirmed by Mohamed Arshad (2012) in the Malaysian context. First, supermarkets have made necessary the need for a central distribution center, centralizing procurement rather than the former system that allowed various procurement links to a traditional market. Second, the centralization of procurement required improvement in logistics to reduce transportation costs and create a more efficient procurement system. This, thirdly, saw the need for specialized wholesalers to reduce transaction costs and meet the specific requirements and needs of supermarkets. With that, the rise of formal and informal contracts has taken place especially in the produce sector. Lastly, private standards for quality and safety have also increased. These changes reflect a transformation of the traditional and wholesale system, from production-oriented to consumer-oriented.

Consequently, there has been concern for the wellbeing of various actors in the traditional supply chain, especially small farmers. Reardon, Timmer and Mitten (2010) conducted a study of



new development strategies to include small farmers in supermarket-hit regions. They assert that complementary to the continuing transformation of the food retail industry and procurement system is innovation in development strategies that link small farmers to supermarkets.

In Malaysia, this innovation is seen through the practice of contract farming. Contract farming is an agreement between farmers and purchasing firms to a specific quantity and quality of goods in exchange for a reliable purchasing market, infrastructure improvements, and technical training. Introduced by the government to provide two-way benefits to producers and retailers, contract farming existed previously in the local poultry industry (Saminathan 2005). Providing alternative markets to farmers, while guaranteeing supply to supermarkets has been the main objective in supermarket-farmer contract farming (Singh 2004). The involvement of supermarkets in contract farming created the relationship between farmers and buyers (supermarkets) that is mediated by the Federal Agricultural Marketing Authority (FAMA). This has not been an easy strategy for farmers to adapt to. Singh (2004) explains that farmers face challenges in meeting stringent quality issues, strict deadlines, high entry and account management fees, and long credit periods—issues which Mohamed Arshad (2012) asserts again.

An analysis of literature that surrounds the supermarket revolution has revealed important points that are useful to this study. First, supermarket dominance occurs along the food supply chain through the implementation of high standards and utilization of well-networked system of food procurement. Second, fresh fruit and vegetable farmers have experienced the benefits of global sourcing, while some farmers face challenges in dealing with supermarket standards and marketing their produce to supermarkets. Third, the supermarket-farmer relationship could be equally beneficial given the right measures and policies, such as can be achieved with contract farming.

This paper examines the growing influence of supermarkets in Malaysia's food supply chain and in contract farming. By looking at the implications of supermarkets on the traditional food supply chain and the dynamics of the supermarket-farmer relationship through contract farming, this paper aims to provide better understanding of the growth of supermarkets in Malaysia and its impact on local agriculture.

This study addresses the following research questions: *What changes have been made to the traditional food supply chain with the introduction of supermarkets?* This study is interested

in the differences in the traditional and supermarket supply chain. The various actors and their roles in the traditional supply chain will be compared against their roles in the supermarket supply chain. The study will examine the changes supermarkets have made to the process and what this means for local agriculture, specifically smallholder farmers. *With the introduction of the supermarket supply chain, what control do supermarkets have in contract farming?* FAMA's contract farming program includes agreements with supermarkets, an arrangement that is centered on increasing farmer livelihoods through an agreed price and quantity of produce. Fresh fruit and vegetable farmers are the main suppliers involved in contract farming in Malaysia. This study will explore the control given to supermarkets in a typical contract agreement.

This paper will proceed as follows: Section 2 explains the methodology undertaken to weave the interviews together with the extensive literature review conducted to answer the questions. Section 3 examines the changing food supply chain in Malaysia, from traditional to the supermarket-influenced supply chain, focusing on the changing roles of various actors. The section concludes with an understanding of the emergence of the supermarket-farmer relationship. Section 4 takes a closer look at the impact of supermarkets on farmers, through the implementation of contract farming. The details of contract farming under FAMA, together with the factors that attract farmers to contract farming, its shortcomings and the issues that necessitate supermarket control in contract farming will be analyzed. Section 5 concludes the study by summarizing key findings and discusses policy implications of the supermarket-farmer relationship. It will also provide further areas of research that could be pursued by those interested in supermarkets, local agriculture and contract farming in Malaysia.

This paper should be viewed as a preliminary attempt at understanding supermarket growth in Malaysia and changes that have resulted to the food supply chain. Additionally, this is an initial effort at examining contract farming relationship for both farmers and supermarkets, lending to existing literature that currently lacks specific focus on this relationship. Farmers, supermarkets, researchers, government agencies and policy makers could benefit from the findings of this study as it provides insight to the implications of supermarket dominance in Malaysia's food and agriculture scene, and subsequently, avenues that could be explored in order to address national problems related to farmer livelihoods.

## 2. Methodology

This study focuses on urban areas at the state level, as supermarkets are prominent in more urbanized states (Selangor, Federal Territory of Kuala Lumpur, Johor and Penang) and there is existing literature on the above states that is relevant to this study.

### 2.1 Unit of analysis

This study pays attention to supermarkets and their impact on local agriculture through contract farming and subsequently, national policy related to managing this relationship.

The majority of this study was conducted based on secondary information, through a review of existing literature. In addition to scholar literature, government documents, conference reports, research-based reports by non-profits and relevant organizations, and national policy documents pertaining to supermarkets and contract farming were analyzed.

To supplement the literature, interviews were conducted with representatives from the Department of Agriculture, the Federal Agricultural Marketing Authority (FAMA), a multinational agribusiness, and large supermarket chains in Malaysia with and without contract agreements.

A total of seven interviews were conducted, three of which were in-person. One interview was conducted via email and three more were done via phone conversation. Further details of the interview participants can be found in the Appendix 2.

### 2.2 Selection of Supermarkets

The focus of this study is supermarkets in contract farming; this study represents supermarkets in Malaysia that have and have not made contract agreements. Included are domestic and transnational supermarket chains.

According to the Malaysian Ministry of Domestic Trade, Co-operatives and Consumerism (MoDTCC), distributive retail includes hypermarkets, department stores and superstores. Contract farming with FAMA is specific to hypermarkets and supermarkets. Chains that fit in these categories with stores country-wide are TESCO, AEON Big (formerly Carrefour), Giant, Mydin, The Store, and AEON (formerly Jusco). For the purpose of this study, the term “supermarket” includes supermarkets and hypermarkets, as many studies on Malaysian

contract farming do not distinguish between the two, and the above chains have outlets that are both hypermarkets and supermarkets. Representatives from three of the five supermarket chains (Mydin, Tesco, The Store and AEON) were interviewed about their experiences with farmers, FAMA and contract farming.

With approval from the Institutional Review Board (IRB) for an exemption from a full review, hour-long in-person and phone interviews were conducted within the span of two weeks in Malaysia in December 2013 and January 2014. Some respondents also chose to provide written answers to questions. Interviewees were asked questions based on their knowledge in the field and experience with the supply chain procurement system, FAMA relations and contract farming.

Questions for FAMA were arranged according to two topics: traditional vs. supermarket supply chain, and the details of contract farming. Questions for supermarkets were arranged according to two topics: the process and important actors in the supermarket supply chain, and their participation in FAMA's contract farming program and their opinions about the program. Supermarkets that participated in contract farming received different questions than supermarkets that did not participate. Supermarkets were asked if they currently participated in contract farming during initial contact, which determined their questions for the second portion of the interview. Those that currently participate were asked about their opinions of the system, while supermarkets that were not part of contract farming were asked for reasons they did not participate, and what circumstances would encourage their participation.

### **3. Traditional vs. Supermarket Food Supply Chain in Malaysia**

Traditional food retail in Malaysia consists of wet markets, night markets, dry markets, sundry shops and mom and pop establishments. The first supermarket, the Weld, opened in 1963, catered predominantly to the expatriate community in Kuala Lumpur. Income growth, increased urbanization and trade liberalization, as discussed earlier, created an avenue for supermarkets to enter the food retail market in the mid-1990s. Makro opened its first warehouse club in 1992, and Carrefour opened its doors in 1994 (Roslin and Melewar 2001). Foreign-owned retailers grew to account for 46 percent of the supermarket sector according to the 2005/2006 Economic Report (Kaliappan et al. 2009) and, along with this, the food supply chain evolved.



This section details the process of the traditional food supply chain in comparison to the supermarket supply chain. The differences in the process of food procurement, the involvement of the main actors in the chain, standard and quality of produce, price determination, and the role of farmers will be examined. Following this comparison is an analysis of the impact of supermarkets on farmers, and a discussion focused on the emergence of the supermarket-farmer relationship. Emphasis placed on the supermarket-farmer relationship at the end of the chapter transitions this study into the impact of supermarkets on contract farming, discussed in the following section.

### *3.1 The Traditional Food Supply Chain*

#### *Process of Food Procurement*

At the beginning of the chain were farmers who grew and sold produce to wholesalers. Price inefficiencies were plentiful at this stage due to the small number of wholesalers relative to farmers, hence their ability to determine prices. This stage involved more value-added activities such as packaging, branding and converting raw products to higher priced consumer products (fruit that is washed, cut and peeled) followed by the movement of produce to the wholesale market by transporters. In some instances wholesalers also ventured in transporting produce. From the wholesale market, produce was purchased by retailers, and transporters again assisted the process from wholesale market to retail market. The distributive patterns of produce in this supply chain did not follow a set organization and was loosely structured. The involvement of multi-layered middlemen was commonplace. The focus of this system was on the various agents that played their roles, and less so on an organized and efficient way to move produce from farm gate to retailer (Mohamed Arshad 2012).

#### *Important Actors in the Supply Chain*

The conventional food retail market chain was an elaborate system that involved suppliers and producers (which, in this study, refers to growers and farmers), wholesalers, transporters, and retailers. Concerned mostly with the labor-intensive growing process, few farmers saw incentive in investing in value-added service to their produce. At most, farmers graded their fruit, but little was done for packaging and branding. A study by Man, Mohd. Nawi (2009) and Ismail



determined that most farmers employed foreign workers to assist in their farms, and several different crops were grown at the farm. Producers commonly lacked market information specific to the demand of produce, because of poor communication between producers and wholesalers at the market. As a result, low quality produce and insufficient supply were common problems in the supply chain. Farmers in this system produced without much market information, selling produce to agents based on current price. The system was less structured and less focused on the process, which meant that farmers could participate in the chain with ease. Price negotiations depending on the yield of the crop were common, and big or small farmers participated in this chain with relatively minimal bias in produce purchase as standards were not strictly adhered to.

Wholesalers had a big role in this system. Purchasing from farmers, they were the preferred buyers, compared to transporters or collectors. In their study, Man, Mohd Nawi and Ismail (2009) showed that approximately 64 percent of output from farmers were sold to wholesalers. Farmers paid little attention to their produce after yield production; wholesalers were more partial to invest in value-added activities like branding and packaging as well as in transporting goods to the marketplace. Some wholesalers purchased from other wholesalers, adding to the chain, which ultimately reflected in high product cost. Wholesalers also sold goods direct to retailers in wholesale markets. The preferred method of payment was in cash with a credit period ranging between 16 to 30 days. Acting as the middleman of sorts, their role was the intermediary between farmers and the retail market. It should be noted that the Federal Agricultural Marketing Authority (FAMA) also purchased from farmers at this stage, mostly leftover yield otherwise considered losses to the farmer (FAMA interview).

Transporters that were not integrated with wholesalers were stand-alone businesses, mostly family run. Large trucks were utilized to convey goods, charging by distance of journey or weight of produce. In order to maximize carriage per trip, various types of produce were transported in one journey.

Retailers in this chain varied in nature, and continue to function parallel to supermarkets. Night markets, wet markets, fruit stalls, and sundry shops were supplied fresh produce from wholesale markets, either by frequenting the markets themselves or having produce delivered by transporters.

### *Price Determination*

Farmers had little to adhere to for product quality and standard due to little market information. As a result, post-harvest loss was significant. Together with the involvement of several intermediaries (from wholesaler to transporter to retailer), traditional markets sold produce at a high price (Mohamed Arshad 2012). In addition, the informality of the traditional supply chain reflected in prices. “Personal negotiations” commonly determined price agreements, which caused market inefficiencies (Shamsudin and Selamat 2005).

### *Quality and Standards*

The traditional supply chain was driven by inconsistent or lacking standards, voluntarily enforced. The result was high post-harvest losses, 10 to 40 percent in most cases (Mohamed Arshad 2012). There was no clear demand or enforcement by the market for standards, and consequently farmers were not incentivized to supply high quality produce or provide added value to their crops. This is perhaps due to the fact that produce was commonly purchased and sold in bulk by wholesalers, with little emphasis for product differentiation at this stage.

### *3.2 The Supermarket Supply Chain*

In 2005, foreign retailers in Malaysia consisted of Carrefour (France), Makro (Holland), Jaya Jusco (Japan), Tesco (United Kingdom) and Giant (Hong Kong), predominantly in the states of Kuala Lumpur, Selangor, Perak, Johor and Melaka (Kaliappan et al. 2009). The overall number of supermarkets increased from 429 in 1993 to 1768 in 2008 (Sieh Lee 2013). Chart 3.1 displays the gross output for traditional markets and supermarkets, showing a significant rise for supermarkets in 2008. Cautioning a slight exaggeration, Chen, Sheperd and Da Silva (2005) claim that 60 percent of fruit sales and 35 percent of vegetable sales in Malaysia came from supermarkets. As supermarkets grew to be more present, so did their influence on the food supply chain with its dual focus of increasing food quality and safety alongside reducing costs and increasing volume of produce (Chen, Shepherd, and da Silva 2005).

### *Important Actors in the Supermarket Supply Chain*

The role of wholesalers is still significant in the supermarket supply chain, although more common are formal contractual agreements made with retailers. In an interview with a supermarket representative, “90 percent of supplies come from wholesalers, especially the ones that offer better prices.” Retailers determine the type, quality, and quantity of produce that they

require from suppliers, driven by consumer demand. To reduce transaction costs, supermarkets prefer to make arrangements with larger processing firms that are able to handle bigger purchases, rather than smaller retailers that require added sourcing and increase transaction costs (Mohamed Arshad 2012).

In providing convenience to consumers, supermarkets have created a demand for value-added services to previously undifferentiated produce. As a result, value chains have been added to the supply chain, where processors prepare, package and brand produce.

### *Process of Food Procurement*

With the assistance of information, communication and technology (ICT) networks, the supermarket supply chain is driven by a close-knit network. An important goal of this network is fast and efficient delivery (Man, Mohd. Nawli, and Ismail 2009). The chain begins with farmers and continues to the wholesalers, although, as described above, contractual agreements with larger firms and processors are more preferable to reduce transaction costs. In addition, most supermarkets have collection and distribution centers that allow greater efficiency. According to a supermarket interview participant, some supermarkets do not have distribution centers and instead rely on their close-knit network to make ad-hoc purchases based on price.

Produce is then either transported to the supermarket or to processors that prepare and package for consumer convenience.

### *Price Determination*

As a result of formal contracts with suppliers and wholesalers, price is determined in the agreement set out by the supermarket (Shamsudin and Selamat 2005). The reduced transaction costs from the elimination of smaller wholesalers, bulk purchasing as well as a more efficient supply system is reflected through lower prices in supermarket produce.

The FAMA representative also revealed that supermarkets purchase produce from farmers with an imposed “rejection rate” – the rejection rate is determined when the prior agreement made on quantity and quality of produce is not met; a 10 percent rejection rate from total yield is expected in most exchanges due to produce that do not meet the quality standard (FAMA interview 2013). The savings that supermarkets make from this rejection rate is reflected in the “low prices” advertised in promotions.



### *Quality and Standards*

Perhaps the most significant difference of the supermarket supply chain compared to the traditional supply chain is the imposition of quality and standards for produce, inherently benefiting some over others. For example, farmers with more land and capital are able to adapt better to supermarket demands than are small farmers with less available resources. These standards are further fueled by consumer expectations; many supermarkets take pride in their quality produce, with the expectation of gaining customer loyalty (Rahman 2014). Standards imposed pertain to timely delivery, quality of product, reasonable to low prices, timely payment to suppliers (although credit period is longer), farmers that adhere to Good Agricultural Practices (GAP) and are recognized by the Malaysian Accreditation Scheme (Kaliappan et al. 2009). As mentioned above, the rejection rate imposed on produce, usually 10 percent, is attributed to high standards and quality of produce demanded by supermarkets.

Public standards also influence supermarket activity. For example, Malaysian food safety regulations require labelling and sealing packaged produce, and information on weight, quality, price and source of product must be displayed. Additionally, retailers are prohibited from reusing packages of any vegetable that has been previously used for another food (Loh 2011).

### *Role of Farmers*

Farmer involvement in this new supply chain is more structured, as retailers demand a level of quality and quantity of produce that not all farmers can deliver. As mentioned above, supermarkets prefer dealing with larger producers based on standards that were implemented at the benefit of both, as well as to reduce transaction costs.

Figure 3.1 displays Mohamed Arshad's visual of the traditional food supply chain process juxtaposed against the supermarket supply chain (2012). Table 3.1 summarizes the discussion in sections 3.1 and 3.2.

### *3.3 Implications of Supermarkets on Supply Chain Actors*

The introduction of the supermarket supply chain has been both advantageous and disadvantages to the traditional food supply chain. In general, the new supply chain assisted in creating a linkage system between firms displayed through the supply of products, information networks that allow better communication between firms, inventory management and just-in-

time systems of procurement, technical support for quality management, product inspection and testing, implementation of quality assurance systems and training for product improvement (Kaliappan et al. 2009).

These linkages have been beneficial upstream to the supply chain network (post farmgate). The formal, contractual agreements between retailers and suppliers, wholesalers and processors have improved the efficiency of the previous system. Reducing post-harvest loss as well as avoiding market inefficiencies, the new supply chain has improved the system of food procurement. This has improved sales. The food retail segment displayed an 18.3 percent growth in the first month of 2006, performing better than the other sub-sectors (Kaliappan et al. 2009).

The increase in foreign-owned retail markets also meant that wholesalers and processors had better chances of exposure to foreign markets. Another benefit, particularly to farmers, is the assurance of consistent business from buyers in order to meet supermarket demands. The implementation of high standards has shown an improvement in quality of produce for consumers. At the same time, more efficient supply chain management also meant that prices are more consistent due to reduced post-harvest loss and market inefficiencies.

The previous system, while still in place, has experienced significant impacts. The imposition of standards has been difficult to adhere to, and the inability of local farmers to meet standards has been replaced by foreign suppliers through the supermarket network. In some cases, supermarkets have enforced unreasonable trading conditions and unfair terms that are consequently met with severe penalties imposed by supermarkets, affecting profit for some firms (Kaliappan et al. 2009).

### *3.4 The Supermarket-Farmer Relationship*

The role of farmers and producers in both traditional and supermarket supply chains are dependent on intermediaries, distant and in most situations not direct with retailers. In the traditional chain, this distant relationship reflected the lack of market knowledge. In the supermarket supply chain, farmers still play the main role of producing yet not much incentive is focused on improving growing conditions due to the wide network of growers, local and foreign, that is available to supermarkets. As a result, small farmers lack information, technology and capital to adhere to supermarket demands (Chen, Shepherd, and da Silva 2005).



The relationship between supermarkets and farmers is distant and indirect. In section 3.3, it was mentioned that supermarkets have made possible various linkages in the supply chain system. While a small number of supermarkets purchase direct from farmers through informal agreements, the link between farmers and supermarkets through contract farming is relatively new, as supermarkets have not had much incentive to deal directly to farmers. Several scholars (Arumugam et al. 2011; Kaliappan et al. 2009; Shamsudin and Selamat 2005) have noted that contract farming is a beneficial linkage that bridges supermarket demands with farmer productivity. Recently, contract farming was further highlighted in line with national agenda to promote agriculture as an engine of growth and as a National Key Economic Area (NKEA) under the Ninth and Tenth Malaysia Plans. This *supermarket-farmer* relationship will be further discussed in the following section.

#### **4. Supermarkets in Contract Farming**

This section focuses on supermarkets' influence on smallholder farmers involved in contract farming, informed by an interview with a FAMA representative. Contract farming first began in the Malaysian poultry industry in the 1980s (Morrison, Murray, and Ngidang 2006). With the Sarawak Economic Development Cooperation (SEDC) as mediator, native (bumiputera) farmers sell to the SEDC, who then sell to top processors, who subsequently sell to state-owned outlets such as schools and hospitals (Saminathan 2005).

Nestlé's contract farming program with chilli farmers offers a good example. By providing training and competitive prices since 1995, Nestlé has successfully continued the program with more farmers participating annually. An interview with a representative from Nestlé's Agricultural Services revealed that Nestlé's Maggi Chilli Sauce is self-sufficient on the chilli procured from Nestlé's contract farming efforts. In this program, the Farmers' Organization Authority of Malaysia (FOAM) is the mediator between chilli farmers and Nestlé, voicing needs and concerns of farmers as well as negotiating price with Nestlé through this channel (Arumugam, Wan Muda, and Aisyah 2012). Nestlé additionally began contract farming for red rice used in infant formula in the state of Sarawak in 2007. Similar provisions of training and inputs have created a positive relationship among farmers and Nestlé.



Contract farming as specified in the Ninth Malaysia Plan (RMK9) is managed by the Federal Agricultural Marketing Board (FAMA). FAMA's role is similar to that of the SEDC and FOAM, acting as mediator between fresh fruit and vegetable farmers and buyers.

#### *4.1 Contract Farming and FAMA*

Prior to the contract farming program, FAMA purchased surplus yields from farmers lacking a market to sell to. The implementation of contract farming in 2011 created a more formalized agreement between FAMA and farmers, allowing crops to be produced and sold with greater efficiency. FAMA-mediated agreements are marketing contracts. FAMA defines contract farming as the agreement between producer and FAMA, where FAMA guarantees sales for the farmer by purchasing produce based on an agreement prior to growing season, or that FAMA arranges for the marketing of produce, or that FAMA acts as facilitator between farmers and purchasing firms. Farmers decide on the type of assistance requested from FAMA in each agreement.

In collaboration with various agricultural boards and departments such as the Department of Agriculture (providing on-site training) and AgroBank (providing financial services), the objectives of FAMA's contract farming program are to assist smallholder farmers obtain stable income and assure sales for produce (such as through supermarkets), increase production and ensure quality produce that meet market demands, and enhance technology transfer along the supply chain by providing technical training and assistance.

While this research could benefit from official statistics on the number of contract farmers, hectares of land used for contract farming production, and income range of contract farmers who joined the program, the FAMA official interviewed for this study noted that such information could not be shared. Academics have critiqued that this area of study (contract farming) lacks adequate data for analysis and most studies were based on their own effort in collecting survey data (Mohamed Arshad 2012; Arumugam et al. 2010). According to a news article, 3,199 farmers participated in contract farming in 2013, utilizing 5,434 hectares of land. As of September 2013, 245,662 metric tons of agricultural products, valued at RM491 million (US\$164 million) had been produced that year. In 2014, the program targeted to attract 4,500



farmers, increase farm acreage to 330,000 metric tons and reap sales of US\$220 million (Bernama 2013).

### *Contracted Produce*

FAMA's approved list of produce under contract consists of 13 fruit varieties and 16 vegetables (Table 4.1). This list focuses on marketable produce with long shelf-lives. Leafy greens, for example, are less suitable to be contracted because of their low endurance and ability to withstand heat and transportation. Leafy vegetables are also less price competitive than non-leafy produce.

### *Contracting Process*

The contracting process involves collaboration among various government agencies. An interested farmer could approach FAMA or various other agencies under the Ministry of Agriculture to participate. The Department of Agriculture (DOA) handles the registration process which takes about two weeks to a month to complete. FAMA conducts soil and land tenure checks during this time, ensuring suitability for producing adequate yields.

Several requirements must be met in order to begin a contract. While there is no stringent rule for farm size, the preference is for one hectare (2.5 acres) or more. Farmers should ideally have large enough land to turn a profit of RM2000 (US\$ 667) a month, which is ideally yielded from five acres of vegetable farming, or 10 acres of fruit farming. Farmers are also eligible for loans for land expansion, through Agrobank for as much as RM50,000 (US\$16,667) at 3.75 percent interest rate. Once the above pre-requisites are satisfied, a contract is detailed. Box 4.1 details basic eligibility requirements for contract farming.

### *Specifics of the Contract*

Agreements contain details on quantity and quality, involving collaboration from FAMA, Farmers' Organization Authority of Malaysia (FOAM), DOA, Malaysian Pineapple Industry Board (MPIB), Malaysian Agricultural Research and Development Institute (MARDI) and AgroBank. Most agreements are made prior to production. Farmers determine the perceived quantity of produce that FAMA should agree to purchase, based on their estimated yield that season. Agreements with FAMA are non-binding for farmers, in that farmers are also allowed to sell additional produce to buyers other than FAMA if they wish to.



Price is based on quality and grade of produce. According to FAMA, a price floor is set at 5 to 10 percent of production costs, and purchased at a fixed price. Due to this, purchases at time of harvest could be above or below market prices. The FAMA interviewee also noted that FAMA does not have a rejection rate for produce that do not meet agreed standards. Instead, FAMA buys all produce that it initially agreed to, and produce that is of lower quality is purchased at a discounted rate. On the contrary, supermarkets and other buyers are typically known to incur a 10 percent rejection rate over yields during purchase (refer to Section 3.2 on Price Determination). “Supermarkets have become like kings [sic]. If they want something, they take it. If they don’t want it, they don’t... They prefer imported produce from China, Thailand and Indonesia because they want cheaper prices.”

Contract periods are determined by farmers, commonly by season or crop production periods. FAMA provides several facilities for contract participants such as collection baskets, transportation from farm gate to collection center, collection centers, research on market pricing and quality training. The other agencies such as the DOA and FOAM provide motivational and technical trainings, infrastructure support, and research and development at their own capacities. Contracts are monitored and evaluated by the DOA. Monthly meetings by FAMA and DOA are held to discuss general issues and farmer concerns in contract farming.

On the demand side, FAMA operates on a market-production-market (or market-to-market) principle: buyers (supermarkets) determine the demand for food crops, FAMA relays this market information to farmers to produce crops accordingly to meet demand, and FAMA provides market assistance to sell the produce by collecting from farmers, buying from farmers or making arrangements for buyers to purchase produce. “First we [find] market [information]... How much are supermarkets demanding?”

While supermarkets could technically demand for produce to be delivered from the same farmer, it is more common for produce to arrive from various farms after consolidation at the collection center. As for traceability, packaged produce is labeled with a bar code when sold at supermarkets, traceable back to the individual farmer. FAMA therefore, plays a significant role in contract farming arrangements, as supermarkets deal less with farmers and more with FAMA, and so do farmers similarly deal less with supermarkets directly and more with FAMA. FAMA, while intending to reduce the role of the middlemen in such arrangements, as asserted during the

interview, ironically plays the part of the middle man in facilitating a contract agreement. Table 4.2 summarizes the elements in contract farming agreements.

#### *4.2 Supermarket and Smallholder Involvement in Contract Farming*

This section addresses some reasons farmers and supermarkets choose to be involved in contract farming. This analysis draws from several studies based on survey data. In a study of contract and non-contract farming participants, 100 of the 207 respondents noted their satisfaction with the current contract farming operations, 61 percent of which did not mind that FAMA commonly purchased produce at lower prices. They were satisfied to be assured a market share (Suryandari and Buang 2010).

In another study of 167 contract and non-contract farmers, a logit model was used to estimate an odds ratio of socio-economic characteristics affecting participation in contract farming. They also used a logistic regression to determine dominant variables that influenced willingness to participate in contract farming. Their study concluded that contract farming was viewed favorably by their survey participants. Three factors – land ownership, land size and education produced favorable odds. Farmers who owned land or had longer land tenure tended to be more willing to engage in contract farming. Similarly, farmers with larger plots of land and higher yields were more likely to participate. Higher education levels positively associated with the likelihood of a farmer making contract agreements (Arumugam et al. 2011).

In interviews with supermarket representatives, interviewees representing different establishments responded very similarly. The first interviewee represented a locally-owned large supermarket chain (S1), the second from a large foreign-owned chain (S2). S1 stated that supermarkets looked favorably toward contract farming due to reliability of produce and attractive prices. According to the participant, “Prices fluctuate. When we [make agreements with] FAMA, the price is quite stable.” S2 said that contract farming was profitable to the supermarket, which could be taken to mean that it offered lower prices. S2 also mentioned the benefit of sustaining long-term relationships with FAMA. S2, however, noted that his organization had no longer participated in FAMA’s contract farming program since 2006.

Another study on the factors that contributed to farmer participation in contract farming and the supermarket supply chain using a stratified sampling method and factor analysis returned

five important factors. The study examined survey data collected from 41 farmers engaged in contract farming for fresh fruit and vegetables. Market stability explained almost 40 percent of the variation. Sub-variables in this factor included reduction in marketing risks, secure income and accessibility to markets which showed the highest factor loadings. Access to marketing information and technology returned the second highest percentage of variability at 14.8 percent. Sub-variables with the highest factor loadings were easy access to marketing information, and access to managerial, technical and extension services. The third factor was the transfer of technology to improve farming practices, where the two sub-variables of efficient use of farm resources and skill transfer returned high factor loadings. Access to inputs was the fourth factor, and getting access to loans and credit finance showed high factor loading. Lastly, indirect benefits were also considered a contributing variable though only for 5.3 percent of the variability. Protecting farmers from incurring losses had the highest factor loading (Arumugam et al. 2010).

In sum, farmers and supermarkets saw value in participating in contract farming. It appears that the objectives of contract farming as detailed by FAMA were achieved to some extent from the above studies. Farmers felt assured that they would receive returns by signing an agreement with FAMA, gain skills and improve yields through technical training, while supermarkets noted that low prices encouraged dealings with FAMA. Table 4.3 summarizes reasons that farmers and supermarkets find contract farming favorable.

#### *4.3 Shortcomings of Contract Farming*

The positive view of farmers and supermarkets toward contract farming is countered by several shortcomings. In the survey study of 207 small farmers by Suryandari and Buang (2010), respondents expressed their dissatisfaction predominantly with FAMA's pricing and purchasing agreement. 44 percent of respondents noted the most common problem with contract farming was FAMA's low purchasing price, leaving some farmers feeling trapped to agree with FAMA's terms. 33 percent of the 81 dissatisfied farmers claimed that agreements were made after growing season and yields did not match FAMA's low purchasing prices, causing them to experience losses. Some respondents also noted that competition from imported crops from Thailand that affected market prices contributed to FAMA's low purchasing price. In the logit

model and estimate odds ratio study of 167 farmers, some farmers indicated that the application process and eligibility requirements were difficult to meet. Farmers who perceived this view were less likely to participate in contract farming (Arumugam et al. 2011).

Supermarket interviewees explained that a major issue in dealing with FAMA was inconsistency. Both interviewees, S1 and S2, noted that the uncertainty at which FAMA could not assure consistent supply of produce posed a challenge, causing for the need for sourcing from other suppliers in order to meet demands. According to S1, “Farmers under FAMA have many limitations. So, of course, we have to depend on traders who have much resources... We used to have four contract farming agreements with FAMA. Now we have two.” S2 noted that the range in produce offered by FAMA was limited, and oftentimes quality was compromised. S2 also noted that his supermarket had ceased dealings with FAMA. “[We] ceased dealing with FAMA sometime back in 2006...the arrangement was less ideal in terms of competitive pricing, challenges on product quality, range and inflexible arrangements.”

Price competitiveness and inconsistent supply and quality of produce are two apparent shortcomings of the program (Table 4.4). While farmers and supermarkets see value in contracting with FAMA, these two concerns indicate that FAMA’s role as a marketing authority and mediator require further evaluation and improvement.

#### *4.4 Supermarket Dominance Reflected in Contract Farming*

Bringing the discussion back to the supermarket revolution and growing dominance, some key observations based on contract farming and FAMA provide valuable insight into the Malaysian context. As explained in the previous section, supermarkets maintain a level of quality and efficiency, which trickles down the supply chain. FAMA conducts market research on market demands, driven by supermarkets and other food retailers, which is then relayed to farmers who grow according to demand and quality. An indirect control can be observed here, in that the driving force behind what farmers produce is determined by supermarkets. One of the supermarket interviewees noted that supermarkets constitute 60 percent of the market share for food retail, implicating their dominance in the market.

Mentioned during the interviews is that supermarkets find great importance in consistency and quality of produce, which is reflected in FAMA’s objective to encourage quality



produce. The ease with which supermarkets can source for suppliers other than from FAMA also reflects their highly networked system in order to meet efficiency goals.

While subtle, the impact that supermarkets have in steering FAMA's contract farming initiatives is significant. The fact that FAMA advises producers based on its market-to-market approach and encourages supermarket-grade produce displays a level of adherence to supermarket standards and dominance.

Academics have shown that supermarket agreements in contract farming in Malaysia on the whole has been received favorably. Shortfalls of the program are that farmers do not always feel satisfied with FAMA's purchasing prices that could fall below market price. Supermarkets find that produce from FAMA lacks consistency in terms of quantity and quality, making the process inefficient. Supermarkets interviewed for this study have indicated a dwindling preference in dealing with FAMA, as other suppliers are more consistent about adhering to supermarket demand.

## **5. Conclusion**

A growing body of literature pertaining to the proliferation of supermarkets in developing countries reflects its relative nascence and increasing interest by experts from interdisciplinary fields, ranging from urban studies to agriculture, policy and development. This study has examined the influence of supermarkets in Malaysia's food system, with special interest in the supermarket-farmer relationship.

### *FAMA's Market-to-Market Principle*

FAMA's role in contract farming is integral especially with regard to price determination based on its market-production-market, or market-to-market principle, where supermarkets drives demand and FAMA relays the information to farmers in order for them to produce accordingly. FAMA then coordinates the marketing of produce either by buying directly from farmers or by facilitating marketing agreements with supermarkets. Hence the mediator role that FAMA plays is important in bridging the supermarket-farmer relationship. However, FAMA's role as mediator has proven to be less than ideal for both farmers and supermarkets. Farmers have shown dissatisfaction with FAMA's lower-than-market price offerings, while supermarkets



have preferred not to participate in FAMA's contract farming program due to the unreliability and inconsistency of produce that disrupt the efficiency-driven supply chain.

### *Supermarket Dominance in Contract Farming*

FAMA's market-to-market principle is an important factor in considering the dominance of supermarkets in contract farming. This principle reflects the role of farmers as price-takers, where their yields are driven and priced according to the demand of the supermarket. Seeing as how supermarkets constitute a large portion of food retail market share in Malaysia, their role as price-makers is an indication of dominance in contract farming. In 2008, supermarkets (supermarkets, department stores with supermarkets, and hypermarkets) constituted more than 50 percent of Malaysia's total revenue for non-specialized retail stores (Department of Statistics 2008).

The emphasis placed on quality and standards in FAMA's contract farming is another reflection of supermarket dominance. With the changes brought by the new supermarket supply chain, quality, standards and efficiency drive the supermarket food procurement system and these goals are similar to that of FAMA's contract farming requirements and benefits to farmers.

While contract farming has been favorably received by farmers, a notable concern is the dwindling involvement by supermarkets. A shortcoming of contract farming, retailers have mentioned the lack in consistent quality of produce from FAMA, which oftentimes lead to additional arrangements to source from other reliable suppliers. This is also indicative of supermarket dominance, as there is little need and incentive for supermarkets to participate in contract farming, especially if yields are inconsistent with quality and quantity requirements.

Section 3.3 details the changes brought about by supermarkets upon the traditional food supply chain, in answer to the first research question. In answer to the second research question, this study shows that supermarkets have an indirect control in contract farming. The mediation by FAMA is driven largely by supermarket demands, standards and efficiency, but supermarkets have very little direct interaction with contract farmers.

Policies that encourage sustainable business practices and in return offer incentives could be an example of encouraging supermarkets to consider social consciousness and environmental sustainability. Another consideration is consumer power. Increasing consumer awareness on the benefits of supporting local agriculture could change buying preferences. Additionally, educating



consumers on reducing food waste by buying less “attractive” produce could shift the demand for high quality produce. Supermarkets could offer reduced prices for less attractive produce, and increase the participation of farmers otherwise could not adhere to quality standards. Supermarkets that intend to attract conscious consumers could make changes to their procurement practices and include local, smallholder farmers in their linked network.

### *5.1 Future Directions*

In contrast to existing literature, this study has focused on the supermarket-farmer relationship specific to contract farming. This study looks at closely at the benefits and drawbacks of contract farming to supermarkets and farmers, as a preliminary study of the effectiveness of contract farming. Future research should address the limitations of this study, and explore avenues that would further contribute to understanding the supermarket revolution in Malaysia, such as other systems that could link supermarkets with farmers better. The Buy Malaysia Campaign is one example. Implemented by the Ministry of Domestic Trade, Co-Operatives and Consumerism, the Buy Malaysia Campaign encourages production and consumption of local goods by local manufacturers. Exploring the viability and feasibility of incorporating local food in this Campaign would be an interesting arena to explore.

Understanding current Malaysian consumer perception, behavior and preference for local produce could provide greater perspective on supermarket dominance. Understanding the extent to which consumers are aware of farmer livelihoods and local agriculture, especially in urban centers, could provide compelling outcomes. Extending this to measure the extent to which supermarkets would change procurement practices with increased consumer demand for local produce is another interesting realm. Again, educating consumers on food waste could change preferences and procurement practices. A case study on this topic would be insightful.

Finally, there are very evidently large data gaps surrounding contract farming and farmers in Malaysia. Policies that encourage better data collection and sharing will help improve studies in this field, allowing for greater insights and further improvements to the system that currently exists. In the long run, better data and easier access to information could enrich much of the existing work and better inform agricultural policies pertaining contract farming.



This preliminary study has shown that supermarkets have implicated the Malaysian food system in various ways. While some traditional actors in the supply chain, as reported here, have benefited, others have been negatively affected by the modernized supermarket supply chain. The supermarket-farmer relationship has been distant and indirect. FAMA's role has been fundamental to administer contract farming agreements. While this arrangement has been beneficial for farmers, there is still much that can be done to increase participation from supermarkets. Scholars agree that the potential for contract farming to transform the role of smallholder farmers as greater contributors to the modernizing food supply chain is highly likely. Given the right moves to encourage stronger supermarket-farmer ties, realizing agriculture's role as a National Key Economic Area is goal for Malaysia that is not far in sight.





## Appendix 1: Tables and Figures

Chart 3.1 Output of Traditional Markets and Supermarkets, 1993-2008

Figure 3.1: Comparison of Traditional and Supermarket Supply Chain

Table 3.1: Comparison Framework of Traditional and Supermarket Supply Chain

Box 4.1: Contract Farming Eligibility

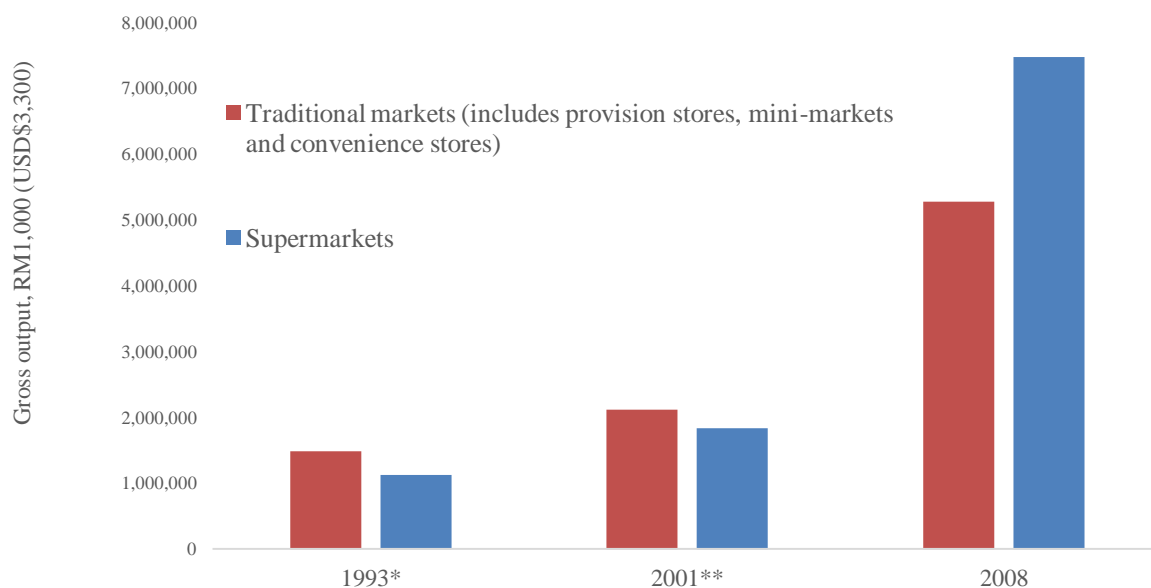
Table 4.1 List of Fruits and Vegetables under Contract by FAMA

Table 4.2: Elements in Contract Farming Agreements

Table 4.3: Benefits of Participating in Contract Farming

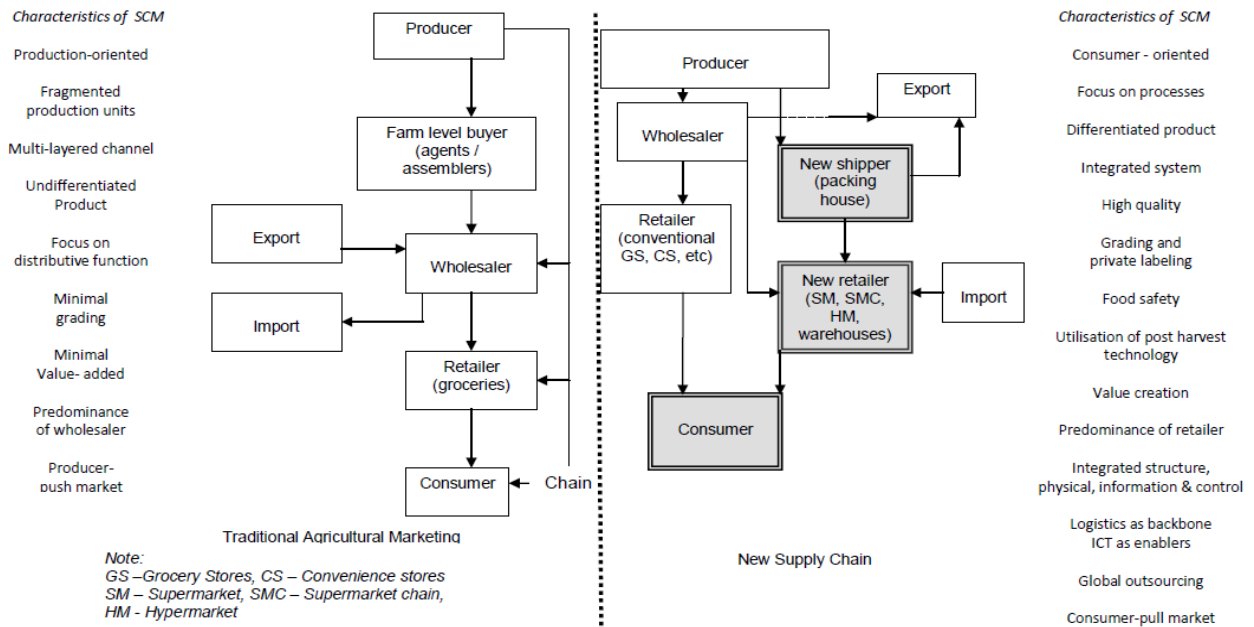
Table 4.4: Shortcomings of Contract Farming

**Chart 3.1 Output of Traditional Markets and Supermarkets**



\*Gross output determined by sales value of goods and services less cost of goods sold, plus other operating receipts and own construction.

\*\* Gross output determined by revenue less cost of goods sold



Source: Mohamed Arshad 2012.

**Figure 3.1: Comparison of Traditional and Supermarket Supply Chain**

**Table 3.1: Comparison Framework of Traditional and Supermarket Supply Chain**

	<u>Traditional</u>	<u>Supermarket Supply Chain</u>
Important actors in the supply chain	Farmers, <b>wholesalers</b> , transporters, collectors, retailers	Farmers, wholesalers, processors, <b>supermarkets</b>
Price	Determined by wholesalers, affected by market inefficiencies and post-harvest loss	Determined by retailers driven by consumers. Low prices and high quality is general demand from supermarkets
Quality and standards	Arbitrary and informal; no incentive to follow standards	Strict and manifold. Standards for quality of produce, Good Agricultural Practices, delivery, pricing and payments
Role of farmers	Large and small farms dealt with wholesalers	Larger farms preferred. Inefficiencies from inconsistent product quality and insufficient quantity recovered by supermarket’s large network of suppliers domestic and foreign

**Box 4.1: Contract Farming Eligibility**

- Individuals/group/company
- Own/rented farmland
- Full-time farmers
- Experienced in commodity crop production for fruit and vegetables
- In possession of sufficient capital for operations

Source: FAMA

**Table 4.1 List of Fruits and Vegetables under Contract by FAMA**

<b>Contracted fruits</b>	<b>Contracted vegetables</b>
Banana	Brinjal
Durian	Cabbage
Guava	Cassava
Mango	Chili
Mangosteen	Corn
Nangka/ Cempedak	Cucumber
Orange	French Beans
Papaya	Gourd
Pineapple	Ladies Fingers
Pitaya	Long Beans
Rambutan	Matured Ginger
Starfruit	Pumpkin
Watermelon	Roselle
	Sugar Cane
	Sweet Potato
	Tomatoes

Source: FAMA

**Table 4.2: Elements in Contract Farming Agreements**

<b>Elements in contract farming agreement</b>	<b>Details</b>
• Agreements	Made prior to growing season. Duration of agreement is farmer's prerogative
• Quantity	Determined by farmer
• Quality	Based on standards determined by retailers
• Non-binding	Farmers can sell to FAMA and other buyers
• Price	Fixed. Based on type and grade of produce. FAMA sets floor price at 5-10% of production cost
• Duration of contract	Determined by farmer. Preferably by growing season
• Facilities provided	FAMA: collection baskets, transportation from farm gate to collection center, collection centers, research on market pricing and quality training
• Monitoring and evaluation	Other agencies: Research and training based on specialty DOA in charge. Based on farmer's individual agreement.

**Table 4.3: Benefits of Participating in Contract Farming**

Farmers	Supermarkets
Assured market share Access to inputs Skill and technology transfer Access to marketing information Likelihood of participating: <ul style="list-style-type: none"> <li>• Farmers who own land more likely to participate</li> <li>• Farmers with larger land more likely to participate</li> <li>• Farmers with higher level of education more likely to participate</li> </ul>	Low prices

Sources: Arumugam et al. 2011; Arumugam et al. 2010; Suryandari and Buang 2010;  
 Author's interviews

**Table 4.4: Shortcomings of Contract Farming**

Farmers	Supermarkets
Not price competitive Complicated application process, and requirements	Inconsistent supply of produce Inconsistent quality of produce Inflexible arrangements

Sources: Arumugam et al. 2011; Arumugam et al. 2010; Suryandari and Buang 2010;  
 Author's interviews

## Appendix 2: Interview Participants

Participant	Division	Date of Interview
<i>Government</i>		
FAMA	Contract Farming	1/3/2014
Department of Agriculture	Development	1/9/2014
<i>Agribusiness</i>		
Nestlé	Agricultural Services	1/10/2014
<i>Supermarket</i>		
Mydin	Procurement	1/10/2014
AEON	Procurement	12/28/2013
The Store	Procurement	12/29/2013
Tesco	Government Relations	2/27/2014

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