

*Feasibility Study on Rationalization and Crop Diversification
in Non-granary Irrigated Areas in Malaysia*

Vol. 2

Crop Diversification Evaluation Methodology

Appendix F

Crop Marketability

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Appendix F

Crop Marketability

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Appendix F

CROP MARKETABILITY

F.1 Perspective of the Government Support

The presence of the estate sector and the smallholder sector characterizes agriculture in Malaysia. The estate sector is well-organized and efficient in production and marketing of export-oriented tree crops such as oil palm and rubber. The smallholder sector holds several constraints leading to low level of productivity and income. The Government support services are concentrated on the smallholder sector.

Agricultural commodity development is promoted by five Ministries in Malaysia. These are:

- Ministry of Agriculture
- Ministry of Primary Industries
- Ministry of Land and Regional Development
- Ministry of National and Rural Development
- Ministry of Public Enterprises

The Ministry of Primary Industries is responsible for research, development and marketing of export-oriented primary products including palm oil, natural rubber and cocoa. Several statutory bodies to administer commodities are set up under the Ministry. Regulation of the tobacco industry is also its task, in which tobacco growing areas are controlled through quota system.

The Ministry of Land and Regional Development implements, through the Federal Land Development Authority (FELDA), large-scale land development and settlement schemes. Planting of oil palm or rubber gives settlers the basis for better living and business opportunities. In these settlement schemes, an approach similar to the estate sector is adopted. To the settlers, FELDA provides management expertise, agricultural extension/training, processing facilities and marketing. Several Regional Development Authorities (RDAs) are also constituted under the Ministry to undertake land development schemes; however, RDAs' schemes have more diversified crops covering fruits and vegetables. Besides these land development agencies, the Rubber Industry Smallholders' Development Authority (RISDA) provides services to rubber smallholders, such as replanting aid, extension, credit, processing facilities and marketing.

Land rehabilitation and consolidation are among the obligations of the Ministry of National and Rural Development. Under the Ministry, the Federal Land Consolidation and Rehabilitation Authority (FELCRA)

carries out its schemes to create more employment in agriculture. The crops planted are oil palm, rubber, paddy, cocoa and pepper.

State Economic Development Corporations (SEDCs) and State Agricultural Development Corporations (SADCs) are supervised and monitored by the Ministry of Public Enterprises. Kedah, Johor, Trengganu and Kelantan SEDCs and Selangor, Perak and Pahang SADCs are implementing land development programs under which oil palm, rubber and cocoa are planted.

The Ministry of Agriculture is a genuine agency in agricultural development. Its primary role is to improve annual/field crop production through providing agricultural services such as extension/training, irrigation and drainage facilities, research, agricultural inputs, credit and marketing. Development of livestock and fisheries is also within its jurisdiction. An important development strategy is the Integrated Area Development Project, in which several agricultural services under the Ministry are delivered in an integrated and concentrated manner. Delivery of agricultural services is the responsibility of the Departments/statutory bodies under the Ministry.

Extension is the core program of the Department of Agriculture (DOA), which is designed for technology/research finding transfer to farmers as well as for changing farmers' attitudes/outlook. The State DOA operates a comprehensive service network within each State, while the Federal DOA backs up the State DOA and maintains liaison with research institutions. Training and visit system is applied to farmers of each crops. Commodity development program is implemented at the same time, to promote the development of cash crops such as cocoa, coconuts, groundnuts and coffee, and food crops such as paddy, vegetables and fruits. Crop area increasing, decreasing or maintaining strategies have been formulated, according to economic considerations and the national demand. In the commodity development program, high quality seeds and necessary input are provided to farmers.

Provision of irrigation and drainage facilities in agricultural areas is the responsibility of the Department of Irrigation and Drainage (DID). Planning and design, construction and the operation and maintenance of the completed facilities are carried out by DID.

Agricultural research is undertaken by the Malaysian Agricultural Research and Development Institute (MARDI). The crops covered by MARDI are all except for oil palm, rubber and fresh-water fish. The primary objective of MARDI is to generate/promote technology for increasing productivity and efficiency.

The Farmers Organization Authority (FOA) has a primary task of promotion/control of farmers' organizations. Wide ranging powers of financial assistance, technical services, agricultural input provision, machinery services and managerial assistance are vested with FOA. Farmers' organizations provide credit facility to the member farmers

from their own funds. In certain designated areas, FOA implements agricultural development projects.

A sole credit institution under the Ministry of Agriculture is the Bank Pertanian Malaysia (BPM) having the credit programs by commodity, which cover:

Palm oil, rubber, cocoa, paddy, fruits, vegetables, tobacco, livestock, fishery and others.

Credits are given from BPM, according to types of activities such as production, processing and marketing.

The Federal Agricultural Marketing Authority (FAMA) is obligated with improvement of the marketing system of agricultural produce, handling agricultural commodities except for oil palm, rubber, pineapple, paddy, livestock and marine fish. However, its direct transaction has been so far limited, and marketing assistance and monitoring functions are prominent.

Livestock production and fisheries development are promoted by the Department of veterinary Services (DVS) and the Department of Fisheries (DOF), respectively, under the Ministry of Agriculture.

Particularly relating to paddy production and marketing, the Muda Agricultural Development Authority (MADA), Kembu Agricultural Development Authority (KADA) and the National Paddy and Rice Board (LPN) are constituted under the Ministry of Agriculture.

F.2 Paddy Marketing and Support Services

Marketing of paddy and rice is government-controlled in Malaysia. The responsible agency is LPN, empowered to impose the guaranteed minimum price of paddy; to issue licences to paddy buyers, rice millers, wholesalers and retailers; to control the national stockpile of rice; to control the movement of paddy and rice; and to participate in paddy and rice industry.

The guaranteed paddy price is reviewed by the Government from time to time, in order to encourage farmers to plant more paddy. The price level varies according to a grade determined with LPN's standard. There is also controlled retail price of rice, so that consumers may get a stable price level.

At present, LPN operates its own drying/milling/storing complexes at 33 places in and around the granary areas. Usually, LPN purchases paddy through these complexes, and sells milled rice to wholesalers. Outside the complexes, several purchasing centers are set-up and purchasing agents which are mostly farmers' organizations under FOA are nominated. At the time of purchasing, paddy subsidy of M\$16.54 per 100 kg is paid with coupon system.

Grading system of rice has been established by LPN and according to the grade, ex-mill price of rice is determined.

Whilst LPN controls and supervises all the marketing of paddy and rice, the capacity of its complexes is far below the total requirement covering 28% of drying demand and 18% of milling requirement. The private sector covers the rest of the required capacity. However, marketing control is strictly enforced by LPN over the licensees in terms of price, grade and weighing.

To promote paddy cultivation in the country, several incentives have been given to the farmers. Paddy fertilizer subsidy is provided usually through farmers' organizations under FOA. Machinery services of FOA are provided intensively to the paddy cultivation areas. Group farming approach of paddy farmers is also encouraged both by DOA and by FOA.

F.3 Oil Palm Marketing and Support Services

Oil palm cultivation in Malaysia is largely based on the estate sector and the land development/settlement schemes organized by the public agencies such as FELDA and FELCRA. Out of the total planted area of 1.68 million ha under oil palm, the estate sector occupies 47% and the public agencies' schemes 45% in 1987. The smallholder sector accounted for only 8% of the planted area.

Marketing of oil palm products has been led by the well-organized system of the estate sector. In 1987, 45 million tons of crude palm oil was produced in Malaysia, of which over 90% was exported in several farming products. The estate sector has already established its own marketing channels, for the purpose of exportation of the products. To the schemes organized by the public agencies, the similar approach is applied; therefore the marketing system is well-organized as well. The smallholder sector is dependent upon the middlemen in the traditional marketing system.

Oil palm fruits are, after harvesting and collecting, transported within 24 hours to near-by oil palm mills where crude palm oil is extracted. Crude palm oil should be further sent to refineries so as to process more value-added products. Export in the form of crude palm oil is minimal, compared to the several products of refined palm oil.

Each estate has an effective marketing chain of collecting, processing and exporting of palm oil; either contracted or subsidiary. This is among to the nature of export-oriented management expertise.

In the schemes organized by the public agencies, the similar chain of marketing channels is developed. Of these agencies, FELDA operates its own palm oil mills and storage installations and a number of cooperative societies engaged in trading/transport of oil palm fruits. It has established several subsidiary corporations and joint-venture

companies in the related fields. Also FELCRA has its own palm oil mills but no refinery, marketing operations being with bidding system.

Some of the palm oil mills are concurrently buyers of the collected oil palm fruits. Marketing of oil palm fruits in the smallholder sector is dependent upon the middlemen who sell the collected oil palm fruits to palm oil mills. These middlemen are either independent or collecting agents of the mills. Processed crude palm oil is sold to refineries or other traders.

In 1987, 241 palm oil mills were in operation out of 263 mills with valid licences. The location of mills is largely influenced by the area cultivated with oil palm. Johor with the largest area under oil palm had the largest number of mills, followed by Pahang with second largest area. There has been a declining tendency of utilization of the capacity installed. In the same year, there were 75 refineries with valid licences, out of which only 38 were in operation. There were 97 kernel crushers with licences but only an average of 48 were in operation each month.

Under the Ministry of Primary Industries, the Palm Oil Registration and Licensing Authority (PORLA) and the Palm Oil Research Institute of Malaysia (PORIM) are instituted. Of these, PORLA regulates, coordinates and promotes marketing and distribution of oil palm products. Licences are issued by PORLA to palm oil mills and kernel crushers, while licensing power for refineries is vested to the Ministry of Trade and Industry. As the research agency, PORIM cover expansion of current use of oil palm and palm oil products and new areas of application as well as the improvement of production efficiency. Recently, PORIM has been intensifying research and development program to strengthen palm oil's competition with other oils and fats.

Land development/settlement schemes with oil palm planting have greatly contributed to the expansion of palm oil production. These schemes are planned and implemented by the public agencies such as FELDA and FELCRA, and also under the land development program of the respective States. In case of FELDA and FELCRA schemes, extension/training, processing facilities and marketing arrangements are provided.

For rubber smallholders, RISDA implements its own replanting program. If the smallholder wants to replant rubber tree with oil palm, a grant of M\$1,500/acre is given from RISDA's replanting program funds.

F.4 Rubber Marketing and Support Services

Rubber cultivation still occupies the biggest area of agricultural land covering 1.9 million ha in 1987 and accounting for about 45% of the total. Although there is the decreasing tendency in rubber planted

area, natural rubber continues to be Malaysia's predominant export crop. Contrary to oil palm cultivation, it is characterized that the share of the smallholder sector is quite large in terms of area planted with rubber, being 79% in 1987. The more productive estate sector has experienced the decline in area planted in recent years.

Marketing is largely influenced by the export-oriented nature of natural rubber. Rubber is exported in the form of rubber sheets, technically specified rubber and latex concentrates, all of which are processed in the factories from raw latex cup lump rubber. Raw latex and cup lump rubber are collected in rubber-growing areas and sent to the factories for processing. Rubber factories produce the final form of rubber for export. Thus, transactions occur in collection of raw latex and other rubber, selling to factories and selling to exporters. Private rubber dealers are engaged in these process of marketing.

The estate sector has, as in the case of oil palm handling, developed marketing chain of latex collection, transport, processing and export. Latex concentrates are mainly produced by large-scale estate groups in Malaysia.

Rubber factories sometimes function as intermediary traders between latex collectors and exporters. However, smallholder sector rubber marketing is conventional and dependent upon the private dealers or brokers.

Under the Ministry of Primary Industries, the Malaysian Rubber Exchange and Licensing Board (MRELB), Malaysian Rubber Development Corporation (MARDEC), and the Rubber Research Institute of Malaysia (RRIM) have been established. Among these, MRELB has functions to manage the Malaysian Rubber Exchange, to register packers/shippers of rubber for export, to license all the traders/commercial activities, and to supervise rubber dealing activities. It determines the official rubber price twice a day. The main tasks of MARDEC are to improve quality of rubber produced by smallholders and to provide the alternative marketing channels to rubber smallholders. It has established 15 factories, and undertakes purchasing operations by appointing rubber purchasing agents. The function of RRIM is to perform research works covering all areas of rubber cultivation, latex production, processing, new forms of rubber and product manufacturing and promotion of new area in consumption.

Both FELDA and FELCRA have implemented land development schemes with high yielding rubber trees, while RISDA is the principal agency to assist rubber smallholders, providing them with the services of agricultural input subsidy, extension/training, rubber factory and infrastructures. Replanting program of RISDA consists of installment of replanting grant of M\$2,500/acre for replanting with rubber and M\$1,500/acre for replanting with other crops.

F.5 Cocoa Marketing and Support Services

Cocoa has become the third most important crop for export, after rubber and oil palm, in Malaysia. The area under cocoa was 341,000 ha in 1987, comprising 110,000 ha in Peninsular Malaysia, 191,000 ha in Sabah and 40,000 ha in Sarawak. The private estates shared 72.5% of the cocoa planted area in Sabah, while smallholders mostly grew cocoa as an inter-crop with coconuts in Peninsular Malaysia and Sarawak.

Out of the total production, more than 85% is exported in the form of dry cocoa beans. The rest is processed into cocoa butter/paste/powder or manufactured as chocolate. However, these are mainly for export with a small amount of local consumption. Joint-venture grinding factories use this portion.

Cocoa marketing thus implies the transactions in collecting harvested cocoa beans from the growers and those in sales of the collected beans to exporters or to grinding factories. Private buyers of cocoa deal in these transactions. Drying of cocoa beans is carried out sometimes by growers and sometimes by these private cocoa buyers. The estate sector produces better quality beans by applying more systematic handling, and directly negotiates and supplies to exporters. Grinding factories have their own purchasing agents or nominate private buyers as an agent.

In view of the need to regulate cocoa marketing in the smallholder sector and to control export quality, FAMA has been empowered to licence all cocoa buyers as well as to conduct direct purchasing from cocoa smallholders. At present, FAMA's direct purchasing covers 90% of cocoa produced in the smallholder sector. Purchased cocoa beans are processed at FAMA processing center. Also FAMA has implemented the cocoa grading scheme and established three grading centers in Port Klang, Johor Bharu and Seberang Perai.

The Government approved the establishment of the Malaysian Cocoa Board under the Ministry of Primary Industries. The Board is empowered with licensing, research and development, upgrading of processing and marketing to contribute overall development of Malaysian cocoa industries. It started functioning in July 1989. The above-mentioned powers and related staff of FAMA will be transferred to the Cocoa Board.

So far, the research results of MARDI have been fully utilized in the expansion of cocoa production with improved seeds, seedling and post-harvest technology. Commodity development program of DOA stresses the intensification of cocoa cultivation wherever suitable. Also FOA implements cocoa planting projects through the farmers' organizations.

F.6 Fruit Marketing and Support Services

Fruit production in Malaysia is still under the smallholder type operations with the exception of certain fruit type and area. The involvement of the estate sector in this field is a relatively new phenomena. The area planted is dispersed and small-scale in size, usually being 1 to 2 ha.

Durian, banana, rambutan, pineapple and mango are the most planted fruits, accounting for around 80% of area grown with fruits. In terms of production volume the largest is banana, followed by durian and pineapple. Recently, export of papaya Exotika, rambutan, mangosteen and banana Mas has been promoted and those production is encouraged.

Most of fruits produced are still for the local market, and it is especially so in the cases of durian and mango. As the area planted is dispersed, growers market their products individually and keeping uniformity in size and quality of fruits is difficult. Collection of fruits is carried out by the transporter/middleman, if there is enough available volume of fruits and the profits in transactions are foreseen. Fruit traders near-by make arrangement of their agents' periodical visits to collect fruits, either seasonal or non-seasonal. Without these collection activities from outside, the growers should bring the products by themselves to traditional market places and sell them.

In sending fruits to remote market places, size and quality of fruits are to be uniformed. In this case, some kind of grading is necessary; if the growers want to do by themselves, cooperative efforts are required. Company-like operation after harvesting is further preferable. Sometimes, fruits traders initiates this type of operation-transaction gathering the growers in the area. If growers would like to do by themselves, they form a "fruit cooperatives", and afterwards sales promotion might be conducted.

For sending fruits to more sophisticated markets such as the Kuala Lumpur Wholesale Market and foreign countries, the more strict grading, cleaning and packaging are required. Fruit wholesalers may assist "fruit cooperatives" to carry out these post-harvest handling in view of the highly-expected price level of the fruits. If there is no "fruits cooperatives" in the fruit-growing area, wholesalers should do it; which is the fruits enterprise operation already.

Currently, FAMA has a close connection of fruit marketing, since one of the priority products in FAMA's program falls on fruits. The program covers the training of farmers on techniques of carrying/handling products at farm level, processing/packaging methods, and grading of products. Training courses are prepared for individual farmers: however, so far the courses for banana Mas have only been conducted for fruits. Besides, marketing intelligence service is the most important FAMA's function. Price level, supply volume and several research results are provided in bulletins based on

supply/demand monitoring including fruits conducted by FAMA enumerators. Promotion of foreign market for Malaysian fruits has been conducted extensively. In this connection, FAMA formulates the fruit marketing control scheme to ensure that only high-quality fruits be exported through proper grading. Initially, star fruit is selected as a target fruit of the scheme. Also FAMA initiates "Eat More Local Fruit" campaign.

The improvement of fruit industry is the strong concern in research and development program of MARDI and commodity development program of DOA. The research program is formulated by MARDI to solve problems in production, post-harvest handling and processing of fruits, so as to develop technologies for higher productivity and quality capable of meeting domestic and export demand. The fruits that MARDI gives priority are: star fruit, papaya Exotika, rambutan, mangosteen, banana Mas, mango, durian and pineapple. In liaison with MARDI, DOA is implementing the commodity development program aiming to promote the development of food crops and cash crops. Fruits are included in food crops to which high quality seeds and planting materials are provided together with extension services.

F.7 Vegetable Marketing and Support Services

Vegetable production is undertaken mostly by small-scale growers with land holding size ranging from 0.8 to 1.3 ha. Small production units are dispersed around cities and towns. The total land area varies from year to year; however, vegetable production has an upward tendency, since the demand is raising according to increase in population size and consumption rate.

The major vegetable-growing areas in the lowlands are:

Tangkak and Kulasi in Johor,
Banting and Tanjung Karang in Selangor,
Kinta Valley and Taiping in Perak, and
Calang Empat and Wakof Stau in Kelantan.

High land vegetables are exclusively grown in Cameron Highlands. Occupying land area of about 2,000 ha, Cameron Highlands supply vegetables of which 50% are marketed to Singapore, 50% to Kuala Lumpur Wholesale Market and 20% to Ipoh Wholesale Market. The marketing system has been already established for Cameron Highlands which are the most important vegetable-growing area in the country.

Around the major vegetable-growing areas, a number of vegetable wholesalers are engaging in their business. They are currently exporters of the vegetables grown in the areas. Collection and transport arrangements are their primary roles. They send their nominated agents in actual operations. Vegetable wholesalers

sometimes conclude contracts with the growers to ensure stable level of vegetable purchasing: Contract farming of vegetables is undertaken by these growers.

In other minor areas, vegetable collectors are mostly transporters/middlemen who bring the produce to the nearby cities or towns in the shortest time to avoid deterioration. Vegetable wholesalers of market places might nominate them as collecting agents or have an agreement of invariable dealings with each other. The transactions inside the market place sometimes show monopsony-cummonopoly structure among intermediaries. From this nature, newly-developed vegetable-producing areas suffer from the inability to enter market transactions.

If the vegetable growers form cooperatives or an association/company, they conduct grading and packing of vegetables to meet the clients' need. Direct dealing with wholesalers such as the Kuala Lumpur Wholesale Market is attained through these operations. Without these strong marketing channels with vegetable dealers, the growers have to sell their produce only in the neighboring areas.

Vegetables are priority products in FAMA's market education program in which farmers are trained with handling techniques at farm level and processing/packaging/grading methods to improve product quality. Vegetable farmers are trained in the courses prepared so as to make their produce more acceptable in the market. Marketing facilities are set up by FAMA to show farmers marketing practices which are called Farm Collection Centers in the same education program. Transaction of vegetables is daily held in these Centers.

The market education program of FAMA is supported by the market control program to strengthen marketing practices in healthy manner. Under this, FAMA issues licences to middlemen, buyers and exporters, for vegetables. Licensing power of FAMA covers other crops such as cocoa, coconut and coffee, but not fruits.

Vegetables being specified as one of the crops to be promoted in the National Agricultural Policy, DOA and MARDI have prioritized in their respective programs. Commodity development program of DOA provides for intensification of technical services in the field of commodity development, plant protection, soil management and mechanization in terms of vegetables. Aims of MARDI's research program are to produce technologies for promoting vegetable cultivation on a commercial and large-scale basis to meet domestic requirements and export needs. Lack of suitable varieties and limitation in production, post-harvest handling and processing technologies hinder the expansion of vegetable cultivation. Such consciousness leads to its revised research program.

F.8 Tobacco Marketing and Support Services

Tobacco growing has attracted, basically due to its high-return, a number of paddy farmers and fishermen. It is very evident for those living in sandy soil areas in Kelantan and Trengganu where other crops cultivation is difficult. In 1987, a total of 12,314 ha were planted with tobacco, of which 65% is in Kelantan, 21% in Trengganu, and the rest in Kedah, Perlis and others.

Production of tobacco is regulated by the National Tobacco Board (NTB) under the Ministry of Primary Industries. The area to be planted with tobacco is determined on an annual basis by NTB after the talks with cigarette manufacturers. This is based on the quota which is allocated to tobacco curers and determined after assessing demand and capacity of the industry.

Since its establishment, NTB has been entrusted with the task of improving and developing tobacco industry to improve the socio-economic status of tobacco growers. In order to ensure proper tobacco cultivation, all the growers are required to register themselves with NTB. Tobacco curers are licensed by NTB so that the efficiency be maintained in curing stations. In 1987, a total of 360 curing stations were operated, of which 185 were in Kelantan, 95 in Trengganu, 29 in Kedah, 20 in Perlis, 14 in Melaka, 13 in Pahang and the rest in Johor and Negeri Sembilan.

Cured tobacco leaves are purchased by cigaret manufacturers. Three major cigaret manufacturers are:

- Malaysian Tobacco Co., Bhd.,
- Rothmans of Pall Mall (Malaysia) Bhd., and
- R. J. Reynolds Tobacco Co., Sdn. Bhd.

Apart, there are another three cigaret manufacturers with licences. Marketing of tobacco leaves is only one kind: tobacco growers to tobacco curer with quota; curers to cigaret manufacturers.

The support services are provided to tobacco growers in order to improve yield and quality of green tobacco leaves. The fertilizer distribution scheme was introduced in 1979, under which 75% of the cost is borne by the cigaret manufacturers and the remaining 25% by the growers. Other distribution schemes such as tobacco seeds, pesticides, fungicides and other chemical inputs, plastic materials and sprinklers are also implemented. Short-term tobacco production and marketing credit program is formulated by the Bank Pertanian Malaysia (BPM) for the growers.

Whilst NTB is attached to the Ministry of Primary Industries, tobacco research and development is undertaken by the Tobacco Research Center, MARDI. Low productivity and leaf quality are relating to the problems faced by the tobacco industry. Research undertaken includes clone breeding and improvement, agronomic practices, plant

protection, irrigation, machinery usage, farm management and curing technology. The results of MARDI's research and development are applied in the extension services of both NTB and DOA.

F.9 Coconut Marketing and Support Services

Coconut has been one of the traditional crops in Malaysia but the area under coconut cultivation has declined steadily during the present decade. The land planted with coconut is turned over to other crops, especially oil palm and cocoa both fetching better prices in the outside market. The estate sector of coconut plantation is fading out, and the industry has tended to remain of marginal importance.

In 1987, the area under coconuts totalled 267,900 ha where still considerable number of people derive a livelihood from its cultivation. The coconut industry is thus inevitably smallholder-type as compared to other export-oriented tree crops.

Coconut by-products are represented by coconut oil and copra. As a commodity, coconut oil has been subject to violent fluctuations in terms of demand and price level in the world market. Utilization of coconuts and coconut by-products needs to be diversified. Young coconuts is, unlike oil palm fruits, in edible use.

Coconut oil is extracted at either coconut oil mills or smallholders' houses. Copra or coconut fruits have to be transported to coconut oil mills. Local coconut buyers collect copra or fruits and sell to the mills in the smallholder sector. Private estates send coconut fruits directly to the mills, contracted or subsidiaries. The quality of copra gathered from smallholders is usually low due to improper handling after harvesting. The defective materials influence the processing process.

Young coconut fruits are also purchased by the local buyers and sold for domestic consumption in the locality. Different from oil palm, coconuts are not wholly processed for oil extraction. Copra also has several utilization purposes as local and traditional food. In the smallholder sector, the local coconut buyers give an available marketing outlet to the growers.

Market regulation program is performed by FAMA through regulating marketing practices and supervising market intermediaries. The objective of program is to ensure fair marketing practices. It covers coconuts and copra. To coconut buyers and exporters, FAMA issues licences. If agricultural products are over-supplied in the market, FAMA undertakes direct transaction with its revolving funds for the purpose of stabilizing price-levels. In this operation, FAMA sometimes purchases over-supplied coconuts. Additionally, FAMA has already established 10 copra processing centers and two coconut oil mills: these facilities are serving coconut smallholders usually, but being able to process the purchased coconut fruits. "Drink Young

Coconut Water" campaign was once conducted by FAMA for one year duration in several large towns in Peninsular Malaysia. It aimed at the promotion to enlarge the market for coconuts.

Presently, research and development programs carried out by MARDI include commodity research of coconuts, in which increase in productivity of the existing coconut areas and diversification of coconuts/coconut by-products utilization are intended so as to maximize economic returns to growers. Commodity development program under DOA also covers coconuts as a cash crop serving for commerce and industry. "Coconut Smallholders Development Scheme" was once implemented over five years ago by DOA. However, facing an adverse situation of the world market, the scheme had ceased.

F.10 Livestock Marketing and Support Services

With the introduction of newly-adopted husbandry systems, the livestock industry in Malaysia has expanded since the 1970s. This responds to the rising demand in the country as per capita income has increased. Increase in production of poultry meat, poultry eggs and pork has enabled the industry to export a portion of these to Singapore and Hong Kong. In the early 1980s, self-sufficiency of these three items have been attained. Beef and mutton production has, however, a stagnant feature in the recent 10 years. Milk production is still at the experimental stage in the country, but the price subsidy to producers has sustained its gradual growth.

Large-scale commercial farms are in operation to feed broilers on layers in the poultry sector, where pullorum disease among the breeder flocks was eradicated as a major advancement. In swine production sector with several large commercial farms established, the progress has been significant to a point far beyond meeting home demand for pork. In Malaysia, not every place is allowed to raise pigs; the location of swine houses are designated within certain areas. Dairies and farms for cattle, buffaloes, sheep and goats have no restriction.

Marketing system is different between the poultry sector and the rest. Poultry meat and eggs are directly sold to wholesalers/retailers from the breeders. On the other hand, cattle, buffaloes, sheep and goats are purchased from the breeders by the animal trader who acts as a collector of stock. The trader brings the purchased stock to the place where an livestock auction is held. The trader might bring the stock directly to a slaughter house, if he determines and bears a valid licence with himself. In auctioning, the stock is sold to the highest bidder who is also an animal trader. The process repeats until the final trader determines to slaughter the stock. At the slaughter-house, meat is prepared and then sold to wholesalers or processors.

The above applies also to pork; however, pig slaughter-houses are not the ordinary ones, located at the remote places.

The agency related to the livestock industry is the Department of Veterinary Services (DVS) which is under the Ministry of Agriculture. Responsibilities of DVS are: (1) livestock conservation, improvement and production; (2) control of animal disease, quarantine and research; (3) meat and milk inspection services and abattoir control, and (4) animal feed/fodder production technology. With these functions, DVS is the sole Government agency to undertake the development of the livestock industry.

Field offices of DVS are the veterinary centers located at 200 places nationwide. Through these veterinary centers, DVS provides the following:

- Disease eradication, prevention, control, treatment and diagnostic services,
- Meat and milk inspection services, and
- Technical advisory services in sheep, mutton, milk, poultry, pig and feed/fodder production.

Further, DVS is responsible for the management of seven major abattoirs and planning to improve more than 70 abattoirs under the town councils throughout the country. These abattoirs will be taken over by DVS.

The most prominent support in the livestock industry is the "Pawah Scheme", under which improved breeds of cattle, buffaloes, sheep and goats are provided to rural farmers, on subsidized sales aiming to multiply and upgrade their stock. Breeds are suitable for meat or dairying, and areas to be distributed are selected as those considered relatively less developed. Several farms are maintained by DVS to ensure supply of food stock. Animals' genetic improvement is continuously carried out by DVS.

Since 1974, 40 milk collection centers have been established in Peninsular Malaysia to help smallholder farmers in terms of production, processing and marketing. These have been transformed from mere garage to processing facilities under the DVS dairy production program.

From the functions of DVS, "trading of livestock" has been excluded, since it absorbed all the powers of the National Livestock Development Authority as the fore-runner agency. (MAJUTERNAK) Even FAMA is not a successor of this function, but it conducts occasional campaigns in terms of domestic market promotion for livestock. "Drink Local Fresh Milk" is one of the campaigns already launched. Thus, the marketing of livestock products is widely left in the hands of the private sector.

Regarding research and development in the livestock industry, the role of DVS is minimal. In Ipoh, DVS has established the

Veterinary Research Institute; however, its research field is limited to animal health.

In addition MARDI is the agency conducting research and development programs on livestock. According to the analysis conducted by MARDI, the major problems facing the livestock, especially the ruminant sub-sector, are low breeding potential, poor management practices and limitation of feed resources. In this consequence, research activities aim at the development of technologies capable of increasing production and productivity of livestock, accelerating the efficiency of the industry as well as diversifying ancillary industries at all levels.

To the farmers breeding animals, BPM has prepared livestock credit program.

F.11 Freshwater Fish Marketing and Support Services

Freshwater aquaculture in Malaysia has a stagnant features. In 1987, cultured freshwater fish amounted 2,740 tons in Peninsular Malaysia. Marine fish landing and the total freshwater fish production in the same year were 852,400 tons and 61,500 tons, respectively. Total fresh production was 913,900 tons in the country. This means that freshwater fish culture in Peninsular Malaysia had only 0.3% of contribution ratio to the total fish production.

The stagnant feature of freshwater aquaculture is derived from the difficult marketing of the fish cultured. Majority of the cultured fish is for local consumption. Preference of the people hinders the long-distance transporting. Marine fish is preferred to freshwater fish; natural fish is preferred to cultured fish; and, furthermore, live fish is preferred to dead fish. Sales of the fish cultured in market places are scarce due to these preference of consumers.

There is no collector/transporter of the fish cultured in freshwater fish-ponds. The operator of fish-pond should deliver the fish with his own transport means. Development of marketing channel should be done. Low demand of the products and high cost of transportation affect the successful operation of freshwater fish-pond. Direct transaction with the clientele and own transport means for delivery are the requirements.

The Department of Fisheries (DOF), Ministry of Agriculture, relates to freshwater aquaculture. Through DOF's extension services, technical knowledge on freshwater fisheries is disseminated, and DOF conducts training courses for fish culturists at training centers and fish breeding stations. Also DOF has research program in aquaculture in which major directions are taken towards the artificial propagation of prawn and fish fry, formulation of fish feeds, and improvement of pond culture techniques.

Under the market intelligence program, FAMA is monitoring supply and demand of freshwater fishes. Market education program includes the training courses for the persons handling freshwater fish. "Eat More Freshwater" campaign is occasionally conducted by FAMA.

F.12 Marketing Potential for Selected Commodities

The importance of marketing information has lately become obvious. To response such questions on which crop has the potential to be cultivated, FAMA commenced an overall survey down to the District level in Peninsular Malaysia in 1985. This study covers three levels namely production, market and consumer. The results of the study are published as "Marketing Potential for Selected Commodities every year..

Under the survey, FAMA collects data on the planted area, harvested area and production over a period of three months through interviews. Besides this, data on the production trends are also monitored and estimated. Figures for long-term fruits such as durian, cempedak, jackfruit, mangosteen, ciku, mango, lime and langsung/duku are obtained from the Ministry of Agriculture's secondary sources. Regarding the data on marketed quantity both inflow and outflow, FAMA collects daily to monthly information from selected samples on a rotation basis among traders in wholesale markets, retail markets, night markets, farmers' markets, daily markets and stalls. Information on consumption by households, hotels and restaurants, institutions and factories is collected through a random sampling survey.

Based on data collected, FAMA estimates values such as total demand, total consumption, internal potential, external and market potential using the following equations.

$$\begin{aligned} \text{Total Demand} &= \text{Total Consumption} \\ &+ \text{Outflow} \\ &+ \text{Post-harvest Losses (20\%)} \\ \\ \text{Total Consumption} &= \text{Household Consumption} \\ &+ \text{Institutional Consumption} \\ &+ \text{Factories} \\ \\ \text{Internal Potential} &= \text{Projected Consumption} \\ &- \text{Production} \\ &+ \text{Post-harvest Losses} \\ \\ \text{External Potential} &= \text{Outflow} \end{aligned}$$

$$\begin{aligned}
\text{Market Potential} &= \text{External Potential} \\
&+ \text{Internal Potential} \\
&= \text{Total Demand} \\
&- \text{Production} \\
&= \text{Projected Consumption} \\
&+ \text{Outflow} \\
&+ \text{Post-harvest Losses} \\
&- \text{Production}
\end{aligned}$$

Data on market potential for a particular commodity can be used as a general guide to identify potential areas where this particular crop can be promoted or where no more possibility of cropping can be expected due to the current oversupply of this crop to markets.

Tables F-1 to F-12 present the 1989 market potential for food crops, vegetables, fruits and freshwater fishes by State projected by FAMA. The market potential for the Peninsular Malaysia is estimated as shown in Table F-13.

*Feasibility Study on Rationalization and Crop Diversification
in Non-granary Irrigated Areas in Malaysia*

*Vol. 2
Crop Diversification Evaluation Methodology*

Appendix F

Tables

Table F-1 Estimated Consumption and Market Potential of Food Products in the State of Perlis for 1989 (1/2)

<i>Unit: ton</i>						
Crop	1 Total Consumption in the State	2 Total Outflow to Other States	3 Post- harvest Loss	4 (1+2+3) Total Demand in the State	5 Total Supply to the State*	6 (4 - 5) Market Potential in the State
1. Food Crops						
Maize	124	0	31	155	0	155
Groundnut	0	0	0	0	38	(38)
Sweet potato	624	0	156	780	0	780
Taro	60	0	15	74	0	74
2. Fruits						
Mango	399	0	100	499	0	499
Guava	197	0	49	247	0	247
Banana	1,271	0	318	1,588	79	1,510
Papaya	583	0	146	728	0	728
Citrus	987	0	247	1,234	0	1,234
Pineapple	628	0	157	785	0	785
Durian	1,063	0	266	1,328	0	1,328
Jackfruit	518	0	129	647	0	647
Langsat	281	0	70	351	0	351
Mangosteen	258	0	65	322	0	322
Rambutan	418	0	105	523	0	523
Sapodilla	225	0	56	281	0	281
Starfruit	32	0	8	41	0	41
Watermelon	1,300	0	325	1,625	2,734	(1,109)
3. Freshwater Fishes						
Carp	1	0	0	2	0	2
Haruan	17	0	4	22	0	21
River catfish	10	0	3	13	0	12
Siamese sepat	56	0	14	70	0	70
Tilapia	16	0	4	20	3	17
Others	2	0	1	3	1	2

Remarks: *; In some case, including imported supply.

Source: FAMA

Table F-1 Estimated Consumption and Market Potential of Food Products
in the State of Perlis for 1989 (2/2)

Unit: ton

Crop	1 Total Consumption in the State	2 Total Outflow to Other States	3 Post- harvest Loss	4 (1+2+3) Total Demand in the State	5 Total Supply to the State*	6 (4 - 5) Market Potential in the State
4. Vegetables						
<i>(Leafy vegetables)</i>						
Cabbages	1,053	0	263	1,316	0	1,316
Spinach	452	0	113	565	0	565
Celery	107	0	27	133	0	133
Chinese chive	199	0	62	261	0	261
Chinese kale	66	0	17	83	0	83
Lettuce	223	0	56	278	0	278
Mustard	1,173	0	293	1,466	0	1,466
Water spinach	431	0	108	539	0	539
<i>(Fruit vegetables)</i>						
Cucumber	810	0	202	1,012	0	1,012
Okra	364	0	91	455	0	455
Bell pepper	2	0	43	46	0	46
Bitter gourd	67	0	17	84	0	84
Chilli	819	0	205	1,024	0	1,024
Egg plant	406	0	101	507	0	507
French bean	213	0	53	267	0	267
Loofah	247	0	62	309	0	309
Squashes	398	0	100	498	0	498
Tomato	601	0	150	751	0	751
Yardlong bean	769	0	192	961	0	961
<i>(Root vegetables)</i>						
Carrot	258	0	64	322	0	322
Raddish	111	0	28	138	0	138
Shallot	1,928	0	482	2,410	0	2,410
<i>(Other vegetables)</i>						
Ginger	217	0	54	272	0	272
Asparagus	0	0	167	167	0	167
Garlic	497	0	124	621	0	621

Remarks: *; In some case, including imported supply.

Source: FAMA

Table F-2 Estimated Consumption and Market Potential of Food Products
in the State of Kedah for 1989 (1/2)

Unit: ton

Crop	1 Total Consumption in the State	2 Total Outflow to Other States	3 Post- harvest Loss	4 (1+2+3) Total Demand in the State	5 Total Supply to the State*	6 (4 - 5) Market Potential in the State
1. Food Crops						
Maize	986	140	282	1,408	1,059	349
Groundnut	1,177	14	298	1,489	389	1,100
Sweet potato	3,087	12	775	3,873	0	3,873
Taro	1,342	1	336	1,679	0	1,679
2. Fruits						
Mango	2,586	0	647	3,233	0	3,233
Guava	1,458	0	365	1,823	0	1,823
Banana	12,008	162	3,043	15,213	3,041	12,172
Papaya	5,671	10	1,420	7,101	328	6,773
Citrus	6,513	0	1,628	8,142	0	8,142
Pineapple	5,658	0	1,415	7,073	0	7,073
Durian	5,303	0	1,326	6,629	0	6,629
Jackfruit	3,281	0	820	4,102	0	4,102
Langsat	1,502	0	375	1,877	0	1,877
Mangosteen	2,110	0	527	2,637	0	2,637
Rambutan	2,413	0	603	3,016	0	3,016
Sapodilla	1,753	0	438	2,192	0	2,192
Starfruit	229	0	57	287	0	287
Watermelon	9,613	2,491	3,026	15,130	7,282	7,848
3. Freshwater Fishes						
Carp	113	0	28	141	0	141
Haruan	328	0	82	410	0	410
River catfish	354	0	89	443	3	440
Siamese sepat	209	0	52	261	0	261
Tilapia	7	0	2	9	16	(7)
Others	62	0	15	77	5	72

Remarks: *; In some case, including imported supply.

Source: FAMA

Table F-2 Estimated Consumption and Market Potential of Food Products
in the State of Kedah for 1989 (2/2)

Unit: ton

Crop	1 Total Consumption in the State	2 Total Outflow to Other States	3 Post- harvest Loss	4 (1+2+3) Total Demand in the State	5 Total Supply to the State*	6 (4-5) Market Potential in the State
4. Vegetables						
(Leafy vegetables)						
Cabbage	7,013	170	1,796	8,978	266	8,713
Spinach	3,303	1	826	4,130	0	4,130
Celery	1,086	12	274	1,372	0	1,372
Chinese chive	1,736	1	423	2,159	0	2,159
Chinese kale	569	7	144	720	0	720
Lettuce	944	8	468	1,419	0	1,419
Mustard	7,488	25	1,878	9,391	531	8,859
Water spinach	4,404	2	1,102	5,508	0	5,508
(Fruit vegetables)						
Cucumber	4,783	266	1,262	6,312	716	5,596
Okra	2,069	20	522	2,612	392	2,220
Bell pepper	33	0	(35)	(2)	0	(2)
Bitter gourd	2,353	0	588	2,942	0	2,942
Chilli	4,887	41	1,232	6,159	823	5,336
Egg plant	2,405	49	1,635	4,089	716	3,373
French bean	1,850	17	467	2,333	30	2,303
Loofah	2,092	6	525	2,623	0	2,623
Squashes	3,806	9	954	4,769	0	4,769
Tomato	2,835	22	714	3,572	0	3,572
Yardlong bean	3,895	157	1,013	5,065	711	4,354
(Root vegetables)						
Carrot	893	10	226	1,129	0	1,129
Raddish	617	7	156	781	0	781
Shallot	7,089	52	1,785	8,927	0	8,927
(Other vegetables)						
Ginger	1,067	33	275	1,375	0	1,375
Asparagus	0	0	(167)	(167)	0	(167)
Garlic	1,933	0	483	2,416	0	2,416

Remarks: *; In some case, including imported supply.

Source: FAMA

Table F-3 Estimated Consumption and Market Potential of Food Products
in the State of Pulau Pinang for 1989 (1/2)

<i>Unit: ton</i>						
Crop	1 Total Consumption in the State	2 Total Outflow to Other States	3 Post- harvest Loss	4 (1+2+3) Total Demand in the State	5 Total Supply to the State*	6 (4-5) Market Potential in the State
1. Food Crops						
Maize	1,280	49	332	1,661	3,793	(2,131)
Groundnut	226	0	56	282	9	273
Sweet potato	765	310	1,011	2,085	0	2,085
Taro	869	12	194	1,075	0	1,075
2. Fruits						
Mango	913	0	228	1,141	0	1,141
Guava	1,642	0	410	2,052	0	2,052
Banana	11,453	0	2,863	14,316	3,552	10,764
Papaya	4,057	37	1,024	5,118	847	4,271
Citrus	2,336	20	589	2,944	0	2,944
Pineapple	6,209	0	1,552	7,762	0	7,762
Durian	4,913	0	1,228	6,142	0	6,142
Jackfruit	1,254	0	313	1,567	0	1,567
Langsat	861	0	215	1,076	0	1,076
Mangosteen	1,102	0	275	1,377	0	1,377
Rambutan	2,152	0	538	2,690	0	2,690
Sapodilla	227	0	57	284	0	284
Starfruit	548	0	137	685	0	685
Watermelon	7,914	0	1,978	9,892	182	9,710
3. Freshwater Fishes						
Carp	12	0	3	15	0	15
Haruan	92	0	23	115	0	115
River catfish	106	0	27	133	0	133
Siamese sepat	83	0	21	104	0	104
Tilapia	1	0	0	1	63	(62)
Others	69	0	17	86	3	84

Remarks: *; In some case, including imported supply.

Source: FAMA

Table F-3 Estimated Consumption and Market Potential of Food Products
in the State of Pulau Pinang for 1989 (2/2)

Unit: ton

Crop	1 Total Consumption in the State	2 Total Outflow to Other States	3 Post- harvest Loss	4 (1+2+3) Total Demand in the State	5 Total Supply to the State*	6 (4 - 5) Market Potential in the State
4. Vegetables						
<i>(Leafy vegetables)</i>						
Cabbage	7,836	1,215	2,263	11,314	221	11,093
Spinach	3,713	3	1,104	4,820	0	4,820
Celery	4,414	0	164	4,578	0	4,578
Chinese chive	1,373	5	366	1,743	0	1,743
Chinese kale	9,095	0	612	9,707	0	9,707
Lettuce	1,499	26	489	2,014	0	2,014
Mustard	770	132	2,307	3,208	991	2,218
Water spinach	2,448	0	928	3,376	0	3,376
<i>(Fruit vegetables)</i>						
Cucumber	4,652	242	1,223	6,117	2,061	4,056
Okra	2,574	17	648	3,239	1,224	2,015
Bell pepper	79	0	240	320	0	320
Bitter gourd	1,530	0	383	1,912	0	1,912
Chilli	6,043	93	1,534	7,670	384	7,286
Egg plant	3,266	37	826	4,128	287	3,841
French bean	1,835	7	460	2,302	52	2,251
Loofah	750	44	198	992	38	954
Squashes	3,249	48	824	4,121	0	4,121
Tomato	4,883	0	1,221	6,104	0	6,104
Yardlong bean	5,438	57	1,374	6,869	892	5,977
<i>(Root vegetables)</i>						
Carrot	9,081	59	540	9,681	0	9,681
Raddish	1,216	0	217	1,434	0	1,434
Shallot	2,066	153	2,087	4,305	0	4,305
<i>(Other vegetables)</i>						
Ginger	4,756	143	295	5,193	0	5,193
Asparagus	10	0	1,111	1,121	0	1,121
Garlic	5,542	0	516	6,058	0	6,058

Remarks: *; In some case, including imported supply.

Source: FAMA

Table F-4 Estimated Consumption and Market Potential of Food Products
in the State of Perak for 1989 (1/2)

<i>Unit: ton</i>						
Crop	1 Total Consumption in the State	2 Total Outflow to Other States	3 Post- harvest Loss	4 (1+2+3) Total Demand in the State	5 Total Supply to the State*	6 (4-5) Market Potential in the State
1. Food Crops						
Maize	1,126	0	281	1,407	0	1,407
Groundnut	8,960	0	2,240	11,200	921	10,278
Sweet potato	1,873	318	1,643	3,833	0	3,833
Taro	1,294	36	477	1,807	0	1,807
2. Fruits						
Mango	1,078	0	269	1,347	0	1,347
Guava	3,193	0	798	3,992	0	3,992
Bananas	15,102	782	3,971	19,856	18,930	926
Papaya	7,931	0	1,983	9,913	5,453	4,460
Citrus	4,180	0	1,045	5,225	0	5,225
Pineapple	4,317	0	1,079	5,396	0	5,396
Durian	6,513	0	1,628	8,142	0	8,142
Jackfruit	1,696	0	424	2,120	0	2,120
Langsat	1,601	0	400	2,002	0	2,002
Mangosteen	1,120	0	280	1,400	0	1,400
Rambutan	2,151	0	538	2,689	0	2,689
Sapodilla	359	0	90	448	0	448
Starfruit	465	0	116	581	0	581
Watermelon	11,079	0	2,770	13,848	11,681	2,167
3. Freshwater Fishes						
Carp	274	0	68	342	0	342
Haruan	274	0	68	342	0	342
River catfish	222	0	55	277	31	246
Siamese sepat	1,629	0	407	2,036	0	2,036
Tilapia	220	0	55	275	142	133
Others	342	0	85	428	266	161

Remarks: *; In some case, including imported supply.

source: FAMA

Table F-4 Estimated Consumption and Market Potential of Food Products in the State of Perak for 1989 (2/2)

Unit: ton

Crop	1 Total Consumption in the State	2 Total Outflow to Other States	3 Post- harvest Loss	4 (1+2+3) Total Demand in the State	5 Total Supply to the State*	6 (4 - 5) Market Potential in the State
4. Vegetables						
(Leafy vegetables)						
Cabbage	16,690	425	4,279	21,393	0	21,393
Spinach	8,625	12	1,977	10,614	0	10,614
Celery	7,897	57	372	8,326	0	8,326
Chinese chive	3,173	1	403	3,577	0	3,577
Chinese kale	20,962	21	365	21,347	0	21,347
Lettuce	3,312	19	894	4,226	0	4,226
Mustard	2,105	574	5,384	8,063	6,391	1,672
Water spinach	1,438	10	2,159	3,607	0	3,607
(Fruit vegetables)						
Cucumber	13,952	32	3,496	17,480	4,158	13,322
Okra	4,539	9	1,137	5,685	1,034	4,651
Bell pepper	472	65	477	1,014	0	1,014
Bitter gourd	1,791	0	448	2,239	0	2,239
Chilli	13,293	202	3,417	16,912	5,580	11,332
Egg plant	5,533	187	1,430	7,151	1,640	5,510
French bean	4,224	317	1,135	5,676	5,723	(47)
Loofah	1,128	39	292	1,459	0	1,459
Squashes	2,523	198	680	3,402	0	3,402
Tomato	8,148	30	2,045	10,223	0	10,223
Yardlong bean	11,075	129	2,801	14,005	3,738	10,266
(Root vegetables)						
Carrot	15,576	0	724	16,300	2	16,298
Raddish	1,783	124	354	2,261	0	2,261
Shallot	4,255	0	3,616	7,871	0	7,871
(Other vegetables)						
Ginger	11,963	134	882	12,979	0	12,979
Asparagus	14	0	2,222	2,236	0	2,236
Garlic	10,718	0	1,064	11,782	0	11,782

Remarks: *; In some case, including imported supply.

Source: FAMA

Table F-5 Estimated Consumption and Market Potential of Food Products
in the State of Selangor for 1989 (1/2)

Unit: ton

Crop	1 Total Consumption in the State	2 Total Outflow to Other States	3 Post- harvest Loss	4 (1+2+3) Total Demand in the State	5 Total Supply to the State*	6 (4 - 5) Market Potential in the State
1. Food Crops						
Maize	955	0	239	1,194	10,879	(9,685)
Groundnut	664	0	166	830	16	813
Sweet potato	2,877	0	1,307	4,184	0	4,184
Taro	1,998	0	719	2,717	0	2,717
2. Fruits						
Mango	1,909	0	477	2,386	0	2,386
Guava	1,755	0	439	2,193	0	2,193
Banana	25,450	1,099	6,637	33,187	2,035	31,152
Papaya	8,096	6,935	3,758	18,789	15,043	3,746
Citrus	9,474	0	2,369	11,843	0	11,843
Pineapple	11,539	0	2,885	14,424	0	14,424
Durian	5,788	0	1,447	7,235	0	7,235
Jackfruit	3,238	0	810	4,048	0	4,048
Langsat	2,263	0	566	2,829	0	2,829
Mangosteen	1,539	0	385	1,924	0	1,924
Rambutan	3,449	0	862	4,311	0	4,311
Sapodilla	1,357	0	339	1,697	0	1,697
Starfruit	2,316	0	579	2,895	0	2,895
Watermelon	13,984	13	3,499	17,497	344	17,153
3. Freshwater Fishes						
Carp	381	0	95	476	0	476
Haruan	149	0	37	187	0	187
River catfish	114	0	28	142	0	142
Siamese sepat	58	0	14	72	0	72
Tilapia	265	0	66	331	0	331
Others	457	0	114	572	0	572

Remarks: *; In some case, including imported supply.

Source: FAMA

Table F-5 Estimated Consumption and Market Potential of Food Products in the State of Selangor for 1989 (2/2)

Unit: ton

Crop	1 Total Consumption in the State	2 Total Outflow to Other States	3 Post- harvest Loss	4 (1+2+3) Total Demand in the State	5 Total Supply to the State*	6 (4 -- 5) Market Potential in the State
4. Vegetables						
(Leafy vegetables)						
Cabbage	13,699	0	3,425	17,124	0	17,124
Spinach	7,582	0	1,551	9,133	0	9,133
Celery	6,203	0	565	6,767	0	6,767
Chinese chive	2,148	0	839	2,986	0	2,986
Chinese kale	16,862	0	762	17,624	0	17,624
Lettuce	3,795	0	656	4,451	0	4,451
Mustard	1,922	432	4,323	6,678	3,088	3,589
Water spinach	3,047	0	1,896	4,943	0	4,943
(Fruit vegetables)						
Cucumber	11,853	1,478	3,333	16,664	2,759	13,905
Okra	4,455	391	1,211	6,057	2,539	3,518
Bell pepper	1,488	0	457	1,945	0	1,945
Bitter gourd	3,945	0	986	4,931	0	4,931
Chilli	11,718	25	2,942	14,685	603	14,083
Egg plant	5,439	50	1,372	6,861	264	6,598
French bean	4,346	66	1,103	5,515	405	5,110
Loofah	3,071	0	768	3,838	0	3,838
Squashes	6,430	0	1,608	8,038	0	8,038
Tomato	7,951	272	2,056	10,278	113	10,165
Yardlong bean	10,864	889	2,938	14,691	1,579	13,112
(Root vegetables)						
Carrot	16,714	0	856	17,570	2	17,568
Raddish	2,146	0	500	2,646	0	2,646
Shallot	5,679	0	3,859	9,538	0	9,538
(Other vegetables)						
Ginger	9,389	0	671	10,059	3,270	6,789
Asparagus	5	0	1,624	1,629	0	1,629
Garlic	12,297	0	1,420	13,716	0	13,716

Remarks: *; In some case, including imported supply.

Source: FAMA

Table F-6 Estimated Consumption and Market Potential of Food Products in the State of Federal Territory for 1989 (1/2)

<i>Unit: ton</i>						
Crop	1 Total Consumption in the State	2 Total Outflow to Other States	3 Post- harvest Loss	4 (1+2+3) Total Demand in the State	5 Total Supply to the State*	6 (4 - 5) Market Potential in the State
1. Food Crops						
Maize	851	0	213	1,064	0	1,064
Groundnut	-	-	-	-	-	-
Sweet potato	1,043	195	845	2,083	0	2,083
Taro	1,332	152	299	1,782	0	1,782
2. Fruits						
Mango	559	872	358	1,789	0	1,789
Guava	955	0	239	1,193	0	1,193
Banana	14,261	239	3,625	18,125	0	18,125
Papaya	5,440	73	1,378	6,891	0	6,891
Citrus	3,631	1,011	1,160	5,802	0	5,802
Pineapple	5,001	316	1,329	6,647	0	6,647
Durian	3,210	923	1,033	5,166	0	5,166
Jackfruit	1,105	20	281	1,407	0	1,407
Langsat	1,456	0	364	1,820	0	1,820
Mangosteen	760	0	190	950	0	950
Rambutan	1,337	112	362	1,811	0	1,811
Sapodilla	700	0	175	875	0	875
Starfruit	1,053	0	263	1,316	0	1,316
Watermelon	9,214	283	2,374	11,870	0	11,870
3. Freshwater Fishes						
Carp	168	0	42	210	0	210
Haruan	89	5	23	117	0	117
River catfish	59	3	16	78	0	78
Siamese sepat	37	0	9	46	0	46
Tilapia	139	11	37	187	0	187
Others	264	18	71	353	0	353

Remarks: *; In some case, including imported supply.

Source: FAMA

Table F-6 Estimated Consumption and Market Potential of Food Products
in the State of Federal Territory for 1989 (2/2)

Unit: ton

Crop	1 Total Consumption in the State	2 Total Outflow to Other States	3 Post- harvest Loss	4 (1+2+3) Total Demand in the State	5 Total Supply to the State*	6 (4 - 5) Market Potential in the State
4. Vegetables						
<i>(Leafy vegetables)</i>						
Cabbage	11,115	3,740	3,714	18,568	0	18,568
Spinach	4,902	398	1,218	6,518	0	6,518
Celery	4,475	69	385	4,929	0	4,929
Chinese chive	959	119	3,049	4,127	0	4,127
Chinese kale	13,486	132	445	14,063	0	14,063
Lettuce	2,851	383	697	3,930	0	3,930
Mustard	1,320	1,150	3,659	6,128	2,571	3,557
Water spinach	1,647	434	1,334	3,416	0	3,416
<i>(Fruit vegetables)</i>						
Cucumber	7,295	1,187	10,603	19,086	8	19,078
Okra	2,418	818	4,045	7,281	1	7,280
Bell pepper	468	235	1,916	2,619	0	2,619
Bitter gourd	1,539	0	1,924	3,463	0	3,463
Chilli	8,432	1,404	2,459	12,294	1	12,293
Egg plant	2,783	1,273	5,070	9,126	0	9,126
French bean	2,806	220	3,783	6,809	0	6,809
Loofah	1,071	814	2,357	4,243	0	4,243
Squashes	1,989	727	3,395	6,110	0	6,110
Tomato	6,686	737	9,280	16,703	0	16,703
Yardlong bean	7,126	990	10,146	18,262	25	18,238
<i>(Root vegetables)</i>						
Carrot	11,083	146	689	11,918	0	11,918
Raddish	1,596	203	384	2,183	0	2,183
Shallot	3,303	382	2,613	6,298	0	6,298
<i>(Other vegetables)</i>						
Ginger	6,547	719	821	8,087	0	8,087
Asparagus	26	0	5,411	5,437	0	5,437
Garlic	9,710	0	826	10,535	0	10,535

Remarks: *; In some case, including imported supply.

Source: FAMA

Table F-7 Estimated Consumption and Market Potential of Food Products in the State of Negeri Sembilan for 1989 (1/2)

Crop	Unit: ton					
	1 Total Consumption in the State	2 Total Outflow to Other States	3 Post- harvest Loss	4 (1+2+3) Total Demand in the State	5 Total Supply to the State*	6 (4 - 5) Market Potential in the State
1. Food Crops						
Maize	143	0	36	178	11	168
Groundnut	145	0	36	181	3	177
Sweet potato	312	0	367	679	0	679
Taro	163	0	78	241	0	241
2. Fruits						
Mango	19	0	5	23	0	23
Guava	363	0	91	454	0	454
Banana	4,389	236	1,156	5,781	1,513	4,267
Papaya	864	0	216	1,080	103	977
Citrus	865	0	216	1,081	0	1,081
Pineapple	1,091	0	273	1,364	0	1,364
Durian	1,922	0	481	2,403	0	2,403
Jackfruit	84	0	21	104	0	104
Langsat	284	0	71	355	0	355
Mangosteen	542	0	136	678	0	678
Rambutan	680	0	170	849	0	849
Sapodilla	119	0	30	149	0	149
Starfruit	138	0	35	173	0	173
Watermelon	4,419	170	1,147	5,736	629	5,107
3. Freshwater Fishes						
Carp	68	0	17	85	0	85
Haruan	59	0	15	74	0	74
River catfish	57	0	14	71	2	69
Siamese sepat	32	0	8	41	0	41
Tilapia	98	2	25	125	20	105
Others	81	5	21	107	57	50

Remarks: *; In some case, including imported supply.

Source: FAMA

Table F-7 Estimated Consumption and Market Potential of Food Products
in the State of Negeri Sembilan for 1989 (2/2)

Unit: ton

Crop	1 Total Consumption in the State	2 Total Outflow to Other States	3 Post- harvest Loss	4 (1+2+3) Total Demand in the State	5 Total Supply to the State*	6 (4 - 5) Market Potential in the State
4. Vegetables						
(Leafy vegetables)						
Cabbage	3,445	1	862	4,308	0	4,308
Spinach	1,757	2	393	2,152	0	2,152
Celery	1,571	0	40	1,611	0	1,611
Chinese chive	94	0	34	128	0	128
Chinese kale	3,709	0	41	3,750	0	3,750
Lettuce	354	0	96	451	0	451
Mustard	99	1	928	1,027	440	587
Water spinach	164	0	439	603	0	603
(Fruit vegetables)						
Cucumber	1,464	1	366	1,830	122	1,708
Okra	800	0	200	999	41	959
Bell pepper	19	0	34	53	0	53
Bitter gourd	316	0	79	395	0	395
Chilli	2,572	18	647	3,237	115	3,122
Egg plant	1,472	1	368	1,841	70	1,771
French bean	768	5	193	967	34	933
Loofah	290	0	73	363	1	362
Squashes	816	1	204	1,022	0	1,022
Tomato	1,191	0	298	1,489	0	1,489
Yardlong bean	2,044	3	512	2,559	145	2,414
(Root vegetables)						
Carrot	5,086	0	166	5,253	4	5,249
Raddish	453	0	41	494	0	494
Shallot	1,316	0	1,219	2,534	0	2,534
(Other vegetables)						
Ginger	1,934	0	170	2,105	0	2,105
Asparagus	1	0	669	670	0	670
Garlic	3,530	0	329	3,859	0	3,859

Remarks: *; In some case, including imported supply.

Source: FAMA

Table F-8 Estimated Consumption and Market Potential of Food Products
in the State of Melaka for 1989 (1/2)

Unit: ton

Crop	1 Total Consumption in the State	2 Total Outflow to Other States	3 Post- harvest Loss	4 (1+2+3) Total Demand in the State	5 Total Supply to the State*	6 (4 - 5) Market Potential in the State
1. Food Crops						
Maize	326	160	122	608	1,761	(1,154)
Groundnut	3,686	58	936	4,680	1	4,679
Sweet potato	1,959	7	492	2,458	0	2,458
Taro	581	5	147	732	0	732
2. Fruits						
Mango	324	0	81	405	0	405
Guava	197	0	49	247	0	247
Banana	5,419	1,075	1,624	8,119	3,277	4,842
Papaya	948	474	356	1,778	807	971
Citrus	659	0	165	823	0	823
Pineapple	975	0	244	1,219	0	1,219
Durian	2,497	0	624	3,121	0	3,121
Jackfruit	657	0	164	821	0	821
Langsat	715	0	179	894	0	894
Mangosteen	442	0	111	553	0	553
Rambutan	835	0	209	1,043	0	1,043
Sapodilla	59	0	15	74	0	74
Starfruit	261	0	65	327	0	327
Watermelon	2,632	1,228	965	4,826	3,120	1,706
3. Freshwater Fishes						
Carp	24	0	6	29	0	29
Haruan	31	0	8	39	1	38
River catfish	22	0	6	28	15	13
Siamese sepat	10	0	3	13	0	13
Tilapia	29	0	7	36	28	8
Others	33	0	8	41	68	(27)

Remarks: *; In some case, including imported supply.

Source: FAMA

Table F-8 Estimated Consumption and Market Potential of Food Products
in the State of Melaka for 1989 (2/2)

Unit: ton

Crop	1 Total Consumption in the State	2 Total Outflow to Other States	3 Post- harvest Loss	4 (1+2+3) Total Demand in the State	5 Total Supply to the State*	6 (4 - 5) Market Potential in the State
4. Vegetables						
(Leafy vegetables)						
Cabbage	5,067	174	1,310	6,551	12	6,539
Spinach	2,838	53	723	3,614	0	3,614
Celery	288	10	74	372	0	372
Chinese chive	120	3	62	184	0	184
Chinese kale	326	84	103	513	0	513
Lettuce	700	26	182	908	0	908
Mustard	7,405	179	1,896	9,480	520	8,960
Water spinach	2,972	13	746	3,732	0	3,732
(Fruit vegetables)						
Cucumber	4,246	108	1,089	5,443	268	5,174
Okra	886	9	224	1,118	223	896
Bell pepper	31	34	100	166	0	166
Bitter gourd	969	0	242	1,211	0	1,211
Chilli	3,201	129	833	4,163	448	3,715
Egg plant	1,573	11	396	1,980	80	1,899
French bean	713	15	182	911	76	834
Loofah	571	11	145	727	0	727
Squashes	481	0	120	601	0	601
Tomato	1,237	10	312	1,559	0	1,559
Yardlong bean	4,530	158	1,172	5,859	664	5,195
(Root vegetables)						
Carrot	486	31	129	646	0	646
Raddish	322	12	83	417	0	417
Shallot	4,771	77	1,212	6,061	0	6,061
(Other vegetables)						
Ginger	668	18	171	857	0	857
Asparagus	6	0	634	640	0	640
Garlic	1,827	0	457	2,284	0	2,284

Remarks: *; In some case, including imported supply.

Source: FAMA

Table F-9 Estimated Consumption and Market Potential of Food Products
in the State of Johor for 1989 (1/2)

<i>Unit: ton</i>						
Crop	1 Total Consumption in the State	2 Total Outflow to Other States	3 Post- harvest Loss	4 (1+2+3) Total Demand in the State	5 Total Supply to the State*	6 (4-5) Market Potential in the State
1. Food Crops						
Maize	986	494	370	1,851	13,508	(11,658)
Groundnut	1,088	30	279	1,397	12	1,385
Sweet potato	5,432	0	1,358	6,790	0	6,790
Taro	2,566	0	641	3,207	0	3,207
2. Fruits						
Mango	2,742	0	686	3,428	0	3,428
Guava	1,636	0	409	2,045	0	2,045
Banana	17,074	210	4,321	21,605	3,087	18,519
Papaya	8,475	594	2,267	11,337	2,415	8,921
Citrus	1,164	15	295	1,473	0	1,473
Pineapple	83,945	0	20,986	104,932	0	104,932
Durian	14,544	0	3,636	18,180	0	18,180
Jackfruit	3,242	0	810	4,052	0	4,052
Langsat	2,335	0	584	2,919	0	2,919
Mangosteen	2,962	0	740	3,702	0	3,702
Rambutan	4,600	0	1,150	5,750	0	5,750
Sapodilla	669	0	167	837	0	837
Starfruit	1,189	0	297	1,486	0	1,486
Watermelon	8,584	8,821	4,351	21,757	39,953	(18,196)
3. Freshwater Fishes						
Carp	142	0	36	178	0	178
Haruan	150	0	38	187	0	187
River catfish	107	0	27	133	0	133
Siamese sepat	58	0	15	73	0	73
Tilapia	82	0	21	103	15	88
Others	90	0	494	112	105	7

Remarks: *; In some case, including imported supply.

Source: FAMA

Table F-9 Estimated Consumption and Market Potential of Food Products
in the State of Johor for 1989 (2/2)

Unit: ton

Crop	1 Total Consumption in the State	2 Total Outflow to Other States	3 Post- harvest Loss	4 (1+2+3) Total Demand in the State	5 Total Supply to the State*	6 (4 - 5) Market Potential in the State
4. Vegetables						
<i>(Leafy vegetables)</i>						
Cabbage	11,736	27	2,941	14,703	0	14,703
Spinach	6,036	10	1,511	7,557	0	7,557
Celery	1,509	8	379	1,897	0	1,897
Chinese chive	720	2	180	902	0	902
Chinese kale	1,238	20	314	1,572	0	1,572
Lettuce	1,642	56	424	2,122	0	2,122
Mustard	17,117	438	4,389	21,944	3,866	18,079
Water spinach	5,991	16	1,502	7,509	0	7,509
<i>(Fruit vegetables)</i>						
Cucumber	8,804	1,141	2,486	12,431	0	12,431
Okra	5,070	50	1,280	6,400	592	5,808
Bell pepper	332	0	83	415	0	415
Bitter gourd	3,093	0	773	3,866	0	3,866
Chilli	8,503	595	2,279	11,377	1,346	10,032
Egg plant	4,524	662	1,297	6,483	1,513	4,970
French bean	2,896	100	749	3,745	1,331	2,414
Loofah	2,482	86	642	3,210	0	3,210
Squashes	1,837	4	460	2,302	4,568	(2,266)
Tomato	13,163	52	3,304	16,520	311	16,208
Yardlong bean	9,485	117	2,401	12,003	4,401	7,602
<i>(Root vegetables)</i>						
Carrot	2,578	3	645	3,226	0	3,226
Raddish	1,549	29	395	1,973	0	1,973
Shallot	13,028	0	3,257	16,284	0	16,284
<i>(Other vegetables)</i>						
Ginger	1,886	22	482	2,391	0	2,391
Asparagus	2	0	1	3	0	3
Garlic	3,683	0	921	4,604	0	4,604

Remarks: *; In some case, including imported supply.

Source: FAMA

Table F-10 Estimated Consumption and Market Potential of Food Products in the State of Pahang for 1989 (1/2)

<i>Unit: ton</i>						
Crop	1 Total Consumption in the State	2 Total Outflow to Other States	3 Post- harvest Loss	4 (1+2+3) Total Demand in the State	5 Total Supply to the State*	6 (4 - 5) Market Potential in the State
1. Food Crops						
Maize	780	0	195	974	1,420	(445)
Groundnut	251	0	63	314	137	177
Sweet potato	1,176	2	1,159	2,338	0	2,338
Taro	827	0	294	1,121	0	1,121
2. Fruits						
Mango	868	0	217	1,085	0	1,085
Guava	1,243	0	311	1,554	0	1,554
Banana	11,706	2,681	3,597	17,983	7,786	10,197
Papaya	3,972	0	993	4,965	233	4,732
Citrus	3,752	0	938	4,690	0	4,690
Pineapple	3,498	0	875	4,373	0	4,373
Durian	3,177	0	794	3,972	0	3,972
Jackfruit	2,255	0	564	2,818	0	2,818
Langsat	965	0	241	1,206	0	1,206
Mangosteen	774	0	193	967	0	967
Rambutan	2,064	0	516	2,581	0	2,581
Sapodilla	905	0	226	1,131	0	1,131
Starfruit	415	0	104	519	0	519
Watermelon	9,158	154	2,328	11,640	5,447	6,193
3. Freshwater Fishes						
Carp	-	-	-	-	-	-
Haruan	77	0	19	96	0	96
River catfish	144	0	36	180	2	178
Siamese sepat	-	-	-	-	-	-
Tilapia	169	0	42	211	28	183
Others	56	0	14	71	16	55

Remarks: *; In some case, including imported supply.

Source: FAMA

Table F-10 Estimated Consumption and Market Potential of Food Products
in the State of Pahang for 1989 (2/2)

Unit: ton

Crop	1 Total Consumption in the State	2 Total Outflow to Other States	3 Post- harvest Loss	4 (1+2+3) Total Demand in the State	5 Total Supply to the State*	6 (4 - 5) Market Potential in the State
4. Vegetables						
(Leafy vegetables)						
Cabbage	7,797	21	1,955	9,773	18,543	(8,771)
Spinach	3,835	8	695	4,539	0	4,539
Celery	2,774	2	140	29,151	0	2,915
Chinese chive	743	3	307	1,052	0	1,052
Chinese kale	10,540	0	201	10,741	0	10,741
Lettuce	1,279	5	239	1,523	0	1,523
Mustard	256	54	2,648	2,958	882	2,076
Water spinach	806	1	959	1,766	0	1,766
(Fruit vegetables)						
Cucumber	7,077	334	1,853	9,264	401	8,862
Okra	1,213	1	304	1,518	52	1,466
Bell pepper	896	1	226	1,123	0	1,123
Bitter gourd	2,149	0	537	2,686	0	2,686
Chilli	5,723	193	1,479	7,395	1,199	6,196
Egg plant	2,955	41	749	3,745	161	3,584
French bean	1,916	3	480	2,399	483	1,918
Loofah	1,575	3	395	1,973	188	1,783
Squashes	2,664	1	666	3,331	0	3,331
Tomato	3,695	8	926	4,629	15,171	(10,542)
Yardlong bean	4,929	172	1,275	6,376	603	5,773
(Root vegetables)						
Carrot	7,792	2	313	8,107	2	8,105
Raddish	988	0	207	1,195	0	1,195
Shallot	2,095	0	1,882	4,787	0	4,787
(Other vegetables)						
Ginger	3,882	3	384	4,270	0	4,270
Asparagus	8	0	961	969	0	969
Garlic	3,777	0	726	4,503	0	4,503

Remarks: *; In some case, including imported supply.

Source: FAMA

Table F-11 Estimated Consumption and Market Potential of Food Products in the State of Trengganu for 1989 (1/2)

Unit: ton

Crop	1 Total Consumption in the State	2 Total Outflow to Other States	3 Post- harvest Loss	4 (1+2+3) Total Demand in the State	5 Total Supply to the State*	6 (4 - 5) Market Potential in the State
1. Food Crops						
Maize	589	0	147	736	6,101	(5,364)
Groundnut	133	396	132	662	159	504
Sweet potato	143	0	749	892	0	892
Taro	741	0	36	777	0	777
2. Fruits						
Mango	1,983	0	496	2,479	0	2,479
Guava	633	0	158	791	0	791
Banana	10,296	0	2,574	12,870	1,713	11,157
Papaya	2,814	0	704	3,518	0	3,518
Citrus	5,484	0	1,371	6,855	0	6,855
Pineapple	4,543	0	1,136	5,678	0	5,678
Durian	4,769	0	1,192	5,961	0	5,961
Jackfruit	2,202	0	550	2,752	0	2,752
Langsat	798	0	199	997	0	997
Mangosteen	1,378	0	345	1,723	0	1,723
Rambutan	1,676	0	419	2,095	0	2,095
Sapodilla	357	0	89	446	0	446
Starfruit	11	0	3	14	0	14
Watermelon	7,333	1,444	2,194	10,971	24,580	(13,609)
3. Freshwater Fishes						
Carp	1	0	0	1	0	1
Haruan	7	0	2	8	0	8
River catfish	10	0	2	12	0	12
Siamese sepat	2	0	0	2	0	2
Tilapia	0	0	0	0	6	(6)
Others	5	0	1	6	4	3

Remarks: *; In some case, including imported supply.

Source: FAMA

Table F-11 Estimated Consumption and Market Potential of Food Products
in the State of Trengganu for 1989 (2/2)

Unit: ton

Crop	1 Total Consumption in the State	2 Total Outflow to Other States	3 Post- harvest Loss	4 (1+2+3) Total Demand in the State	5 Total Supply to the State*	6 (4 - 5) Market Potential in the State
4. Vegetables						
(Leafy vegetables)						
Cabbage	3,376	6	920	4,302	247	4,056
Spinach	1,974	0	175	2,149	0	2,149
Celery	701	0	51	752	0	752
Chinese chive	33	0	94	126	0	126
Chinese kale	4,485	0	19	4,503	0	4,503
Lettuce	403	1	53	457	0	457
Mustard	78	5	1,122	1,205	175	1,030
Water spinach	75	0	493	568	0	568
(Fruit vegetables)						
Cucumber	5,701	3	1,426	7,130	0	7,130
Okra	1,260	0	315	1,575	42	1,533
Bell pepper	13	0	20	33	0	33
Bitter gourd	632	0	158	790	0	790
Chilli	3,092	17	777	3,886	882	3,004
Egg plant	1,938	0	485	2,423	36	2,387
French bean	414	12	107	533	73	460
Loofah	1,141	0	285	1,426	0	1,426
Squashes	1,860	0	465	2,325	0	2,325
Tomato	797	0	199	996	1	995
Yardlong bean	3,780	1	945	4,726	529	4,197
(Root vegetables)						
Carrot	7,822	0	103	7,925	0	7,925
Raddish	94	0	185	280	0	280
Shallot	1,096	0	1,876	2,972	0	2,972
(Other vegetables)						
Ginger	2,673	0	147	2,820	0	2,820
Asparagus	0	0	599	599	0	599
Garlic	713	0	274	987	0	987

Remarks: *; In some case, including imported supply.

Source: FAMA

Table F-12 Estimated Consumption and Market Potential of Food Products
in the State of Kelantan for 1989 (1/2)

Crop	<i>Unit: ton</i>					
	1 Total Consumption in the State	2 Total Outflow to Other States	3 Post- harvest Loss	4 (1+2+3) Total Demand in the State	5 Total Supply to the State*	6 (4 - 5) Market Potential in the State
1. Food Crops						
Maize	1,517	0	379	1,896	21,508	(19,612)
Groundnut	1,121	1,517	659	3,297	1,399	1,899
Sweet potato	5,083	2	1,271	6,355	0	6,355
Taro	1,099	0	275	1,374	0	1,374
2. Fruits						
Mango	4,435	0	1,109	5,544	0	5,544
Guava	724	0	181	905	0	905
Banana	15,554	14	3,892	19,461	1,219	18,242
Papaya	4,799	0	1,200	5,999	116	5,882
Citrus	6,218	0	1,555	7,773	0	7,773
Pineapple	4,115	0	1,029	5,143	0	5,143
Durian	7,509	0	1,877	9,386	0	9,386
Jackfruit	3,003	0	751	3,754	0	3,754
Langsat	1,764	0	441	2,205	0	2,205
Mangosteen	2,017	0	504	2,522	0	2,522
Rambutan	3,416	0	854	4,270	0	4,270
Sapodilla	1,059	0	265	1,323	0	1,323
Starfruit	73	0	18	91	0	91
Watermelon	7,554	39	1,898	9,491	9,157	335
3. Freshwater Fishes						
Carp	131	0	33	163	0	163
Haruan	291	0	73	363	0	363
River catfish	241	0	60	302	12	290
Siamese sepat	3	0	1	4	0	4
Tilapia	1	0	0	1	21	(20)
Others	28	0	7	35	82	(47)

Remarks: *; In some case, including imported supply.

Source: FAMA

Table F-12 Estimated Consumption and Market Potential of Food Products
in the State of Kelantan for 1989 (2/2)

Unit: ton

Crop	1 Total Consumption in the State	2 Total Outflow to Other States	3 Post- harvest Loss	4 (1+2+3) Total Demand in the State	5 Total Supply to the State*	6 (4 - 5) Market Potential in the State
4. Vegetables						
(Leafy vegetables)						
Cabbage	6,319	3	1,580	7,902	448	7,454
Spinach	1,402	0	350	1,752	0	1,752
Celery	203	0	51	253	0	253
Chinese chive	36	1	460	497	0	497
Chinese kale	48	0	12	60	0	60
Lettuce	253	0	63	316	0	316
Mustard	3,935	1	984	4,921	498	4,423
Water spinach	1,818	0	454	2,272	0	2,272
(Fruit vegetables)						
Cucumber	6,931	5	1,734	8,670	475	8,195
Okra	1,552	0	388	1,940	131	1,809
Bell pepper	24	0	43	67	0	67
Bitter gourd	432	0	108	539	0	539
Chilli	3,446	1	862	4,310	470	3,840
Egg plant	2,028	0	507	2,535	139	2,396
French bean	207	0	52	258	24	234
Loofah	2,373	1	593	2,967	0	2,967
Squashes	1,425	0	356	1,781	0	1,781
Tomato	1,638	3	410	2,052	2	2,050
Yardlong bean	3,713	1	928	4,642	530	4,112
(Root vegetables)						
Carrot	297	0	74	372	0	372
Raddish	63	0	16	79	0	79
Shallot	7,471	6	1,869	9,346	0	9,346
(Other vegetables)						
Ginger	1,095	0	274	1,369	0	1,368
Asparagus	0	0	206	207	0	207
Garlic	1,795	0	449	2,244	0	2,244

Remarks: *; In some case, including imported supply.

Source: FAMA

Table F-13 Marketing Potential for Selected Commodities, 1989

Crop	Unit: ton												Total of Penin. Malaysia
	Perlis	Kedah	Pulau Pinang	Perak	Selangor	Kuala Lumpur	Negeri Sembilan	Melaka	Johor	Pahang	Trengganu	Kelantan	
1. Food Crops													
Maize (Sweet corn)	155	349	-2,131	1,407	-9,685	1,064	168	-1,154	-11,658	-445	-5,364	-19,612	-46,906
Groundnut	-38	1,100	273	10,278	813	0	177	4,679	1,385	177	504	1899	21247
Sweet potato	780	3,873	2,085	3,833	4,184	2,083	679	2,458	6,790	2,338	892	6355	36351
Taro	74	1,679	1,075	1,807	2,717	1,782	241	732	3,207	1,121	777	1374	16587
2. Vegetables													
(Leafy vegetables)													
Cabbage	1,316	8,713	11,093	21,393	17,124	18,568	4,308	6,539	14,703	-8,771	4,056	7454	106496
Spinach	565	4,130	4,820	10,614	9,133	6,518	2,152	3,614	7,557	4,539	2,149	1752	57543
Cerely	133	1,372	4,578	8,326	6,767	4,929	1,611	372	1,897	2,915	752	253	33907
Chinese chives	261	2,159	1,743	3,577	2,986	4,127	128	184	902	1,052	126	497	17743
Chinese kale	83	720	9,707	21,347	17,624	14,063	3,750	513	1,572	10,741	4,503	60	84684
Lettuce	278	1,419	2,014	4,226	4,451	3,930	451	908	2,122	1,523	457	316	22094
Mustards	1,466	8,859	2,218	1,672	3,589	3,557	587	8,960	18,079	2,076	1,030	4423	56517
Water spinach	539	5,508	3,376	3,607	4,943	3,416	603	3,732	7,509	1,766	568	2272	37839
(Fruit vegetables)													
Cucumber	1,012	5,596	4,056	13,322	13,905	19,078	1,708	5,174	12,431	8,862	7,130	8195	100470
Okra	455	2,220	2,015	4,651	3,518	7,280	959	896	5,808	1,466	1,533	1809	32611
Bell pepper	46	-2	320	1,014	1,945	2,619	53	166	415	1,123	33	67	7797
Bitter gourd	84	2,942	1,912	2,239	4,931	3,463	395	1,211	3,866	2,686	790	539	25058
Chillis	1,024	5,336	7,286	11,332	14,083	12,293	3,122	3,715	10,032	6,196	3,004	3840	81262
Egg plant	507	3,373	3,841	5,510	6,598	9,126	1,771	1,899	4,970	3,584	2,387	2396	45962
French bean	267	2,303	251	-47	5,110	6,809	933	834	2,414	1,918	460	234	23486
Loofah	309	2,623	954	1,459	3,838	4,243	362	727	3,210	1,783	1,426	2967	23901
Squashes	498	4,769	4,121	3,402	8,038	6,110	1,022	601	-2,266	3,331	2,325	1781	33730
Tomato	751	3,572	6,104	10,223	10,165	16,703	1,489	1,559	16,208	-10,542	995	2050	59278
Yardlong bean	961	4,354	5,977	10,266	13,112	18,238	2,414	5,195	7,602	5,773	4,197	4112	82201
(Root vegetables)													
Carrot	322	1,129	9,681	16,298	17,568	11,918	5,249	646	3,226	8,106	7,925	372	82439
Raddish	138	781	1,434	2,261	2,646	2,183	494	417	1,973	1,195	280	79	13880
Shallot	2,410	8,927	4,305	7,871	9,538	6,298	2,534	6,061	16,284	4,787	2,972	9346	81334
(Other vegetables)													
Ginger	272	1,375	5,193	12,979	6,789	8,087	2,105	857	2,391	4,270	2,820	1368	48505
Asparagus	167	-167	1,121	2,236	1,629	5,437	670	640	3	969	599	207	13512
Garlic	621	2,416	6,058	11,782	13,716	10,535	3,859	2,284	4,604	4,503	987	2244	63611
3. Fruits													
Mango	499	3,233	1,141	1,347	2,386	1,789	23	405	3,428	1,085	2,479	5544	23358
Guava	247	1,823	2,052	3,992	2,193	1,193	454	247	2,045	1,554	791	905	17496
Banana	1,510	12,172	10,764	926	31,152	18,125	4,267	4,842	18,519	10,197	11,157	18242	141872
Papaya	728	6,773	4,271	4,460	3,746	6,891	977	971	8,921	4,732	3,517	5882	51870
Citrus	1,234	8,142	2,944	5,225	11,843	5,802	1,081	823	1,473	4,690	6,855	7773	57885
Pineapple	785	7,073	7,762	5,396	14,424	6,647	1,364	1,219	104,932	4,373	5,678	5143	164795
Durian	1,328	6,629	6,142	8,142	7,235	5,166	2,403	3,121	18,180	3,972	5,961	9386	77664
Jackfruit	647	4,102	1,567	2,120	4,048	1,407	104	821	4,052	2,818	2,752	3754	28193
Langsat	351	1,877	1,076	2,002	2,829	1,820	355	894	2,919	1,206	997	2205	18530
Mangosteen	322	2,637	1,377	1,400	1,924	950	678	553	3,702	967	1,723	2522	18755
Rambutan	523	3,016	2,690	2,689	4,311	1,811	849	1,043	5,750	2,581	2,095	4270	31628
Sapodilla	281	2,192	284	448	1,697	875	149	74	837	1,131	446	1323	9737
Starfruit	41	287	685	581	2,895	1,316	173	327	1,486	519	14	91	8414
Watermelon	-1,109	7,848	9,710	2,167	17,153	11,870	5,107	1,706	-18,196	6,193	-13,609	335	29175
4. Freshwater Fishes													
Carp	2	141	15	342	476	210	85	29	178	-	1	163	1641
Haruan	21	410	115	342	187	117	74	38	187	96	8	363	1959
River catfish	12	440	133	246	142	78	69	12	133	177	12	290	1745
Siamese sepat	70	261	104	2,036	72	46	41	13	73	-	2	4	2723
Tilapia	17	-7	-62	133	331	187	105	8	88	183	-6	-20	958
Others	2	72	84	161	572	353	50	-27	7	55	3	-47	1285

Source: FAMA, Marketing Potential for Selected Commodities, 1989

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