
Tropical Development and Research Institute

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The market for processed tropical fruit

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Summaries

SUMMARY

This report is concerned with an investigation of the major markets for processed tropical or exotic fruit. The markets studied are France, the Federal Republic of Germany, the Netherlands, the United Kingdom, Switzerland, the United States and Japan. Tropical fruit and their products are many and diverse; the study is concentrated on the more dynamic sectors of the market: that is, pulps, juices and canned fruits. The processed fruit for which there is significant demand are passion fruit, guava, mango and papaya, although other processed tropical fruit are also traded and are discussed in the text: these include soursop, cherimoya, lychee, longan and rambutan as well as canned tropical fruit salad.

The statistical base for research on markets for processed tropical fruit is limited. Generally, data are not available for individual fruit: so for most of the countries mentioned, estimations of market size had to be made from a study of the residual 'other fruit' category in import statistics, linked where possible to known suppliers of processed tropical fruit. Field work in the market countries enabled supporting evidence for these estimates to be obtained, and investigation of market channels, trade preferences and assessment of prospects to be made.

In Section 2 of the report a brief description of the major tropical fruit products entering world trade is provided. In Section 3, each of the major exporting countries is reviewed, and supporting statistical information provided where possible. In Sections, 4, 5, 6 and 7 the import markets for pulps, purées and juices, and canned fruits in Europe, the United States and Japan are reviewed and future prospects discussed.

RÉSUMÉ

Le présent rapport est une étude des principaux marchés des fruits tropicaux ou exotiques transformés industriellement. Les marchés étudiés sont la France, la République fédérale d'Allemagne, les Pays-Bas, le Royaume-Uni, la Suisse, les Etats-Unis et le Japon. Les fruits tropicaux et leurs dérivés sont nombreux et variés; cette étude est centrée sur les secteurs les plus dynamiques du marché, c'est-à-dire pulpes, jus et conserves de fruits. Les fruits transformés industriellement pour lesquels la demande est importante sont les fruits de la passion, goyaves, mangues et papayes. D'autres fruits tropicaux, également commercialisés, font l'objet de discussions dans ce rapport. Parmi ceux-ci, citons le corossol, l'anone chérimole, le litchi, le longane et le ramboutan; dans les productions industrielles, citons les conserves de salades de fruits tropicaux.

Les statistiques nécessaires à la recherche sur les marchés des fruits tropicaux transformés industriellement sont limitées. En général, on ne dispose pas de données pour chaque espèce de fruit; aussi, pour la plupart des pays mentionnés, les estimations du marché ont dû se faire à partir d'une étude de la catégorie

résiduelle 'autres fruits' des statistiques d'importation, liées, si possible, aux fournisseurs connus de fruits tropicaux transformés industriellement. Un travail sur le terrain dans les pays du marché a permis de confirmer ces estimations, et de se livrer à une étude des filières et préférences commerciales, ainsi que des prévisions.

La section 2 du rapport présente une brève description des principaux dérivés des fruits tropicaux faisant leur apparition sur le marché mondial. Dans la section 3, chacun des principaux pays exportateurs est passé en revue, et, dans la mesure du possible, des statistiques sont également fournies à l'appui. Dans les sections 4, 5, 6 et 7, les marchés à l'importation en Europe, aux USA et au Japon pour les pulpes, purées, jus et conserves de fruits sont également passés en revue et les perspectives futures y sont discutées.

RESUMEN

Este informe se halla relacionado con una investigación de los principales mercados para frutas tropicales o exóticas elaboradas. Los mercados estudiados han sido Francia, República Federal de Alemania, Holanda, Reino Unido, Suiza, EE.UU. y Japón. Muchas son las frutas tropicales y los productos de ellas derivados, habiéndose concentrado el estudio en los sectores más dinámicos del mercado, es decir, pulpas, jugos y frutas enlatadas. Las frutas elaboradas para las que existe una demanda significativa son la pachita, guayaba, mango y papaya, si bien existen asimismo en el mercado otras frutas tropicales elaboradas que se estudian en el texto. Valga citar entre las mismas la guanábana, chirimoya, lychee, longan y rambutan, así como la ensalada enlatada de frutas tropicales.

La base estadística para investigaciones mercadotécnicas relacionadas con las frutas tropicales elaboradas es limitada. En general, no existen datos disponibles relativos a las distintas frutas, por lo que, para la mayoría de los países mencionados, se hizo necesario realizar cálculos del mercado a partir de un estudio de la categoría residual 'otras frutas' de las estadísticas de importación, relacionadas, cuando es posible, con conocidos proveedores de frutas tropicales elaboradas. Trabajos sobre el terreno llevados a cabo en países del mercado hicieron posible la obtención de pruebas auxiliares para dichos cálculos, así como la realización de investigaciones sobre canales del mercado, preferencias comerciales y evaluación de posibilidades.

En la Sección 2 del informe se proporciona una breve descripción de los principales productos de frutas tropicales en el mercado mundial. En la Sección 3, se pasa revista a cada uno de los principales países exportadores, suministrándose información estadística auxiliar siempre que es posible. En las Secciones 3, 4, 5, 6 y 7, se examinan los mercados de importación para pulpas, pures y jugos, y frutas enlatadas en Europa, Estados Unidos y Japón, investigándose también las perspectivas de cara al futuro.

Introduction

BACKGROUND TO THE STUDY

In 1971 the International Trade Centre (ITC) (UNCTAD/GATT) published a report *Markets for exotic fruit products in the United Kingdom, the Federal Republic of Germany, Switzerland and the Netherlands*. The ITC report did not cover the United States or Japanese markets, and no other comprehensive report on this subject has been published since then.

The Tropical Development and Research Institute (TDRI) receives regular enquiries about the market potential of processed exotic fruit, and a number of growth sectors exist which offer specific opportunities for suppliers based in the developing countries.

The aims of this report were to:

- review production and exports, identifying trends and problems,
- review imports identifying the size of markets and trends,
- assemble regulations on quality and packing requirements with regard to products, packs, etc.,
- catalogue tariff and non-tariff trade barriers,
- assemble and present product price information, and to
- assess the future potential for products used in the selected markets with particular reference to prospects for developing countries.

STATISTICAL BASE

The trade statistics of the importing countries provide a rather incomplete data base since for some countries, they are not categorised by fruit, or even groups of fruit.

In the European Community (EC) countries, processed tropical fruit imports are included in the residual category 'other fruits', which also includes processed non-tropical fruit such as plums, cherries, persimmons, nectarines, berries and kiwi fruit. In Switzerland, trade statistics for all processed fruit commodities, except those with a grape or lemon base, are combined, although, as in the EC, they are separated according to whether they are juiced, puréed or canned.

Statistics for the United States are more detailed, indicating thirteen specified categories of canned and juiced tropical fruit as well as additional categories for jam, jellies and fruit in brine. Detailed import figures for Japan are also available, and extend to sixteen categories, although unfortunately some of these include considerable quantities of processed bananas as well as products such as strawberries and other temperate fruit.

MARKET COUNTRIES

Visits were made to importers in Japan, the United States, Switzerland, France, the Netherlands, the Federal Republic of Germany (West Germany) and the United Kingdom. These countries were chosen on the basis of the prospects indicated by the available statistics and also the in-house experience built up by TDRI during research for previous market enquiries. The markets selected were considered to offer the most promising opportunities for exporters of processed tropical fruit since, although small in size, indications were that all the markets were expanding. This field work enabled assessments to be made of the demand for individual items which were not possible by study of trade statistics only, as well as investigation of market structure, trade preference, etc.

PRODUCING COUNTRIES

An initial visit was made to the Philippines to discuss with exporters and producers the problems of marketing processed tropical fruit to overseas outlets. This approach ensured that production constraints would be firmly identified before the market research. Fruit production and consumption in tropical countries are characterised by seasonal production patterns, low prices and even considerable wastage during peak harvest periods. For these reasons developing countries frequently look to processing as a means of enhancing the value of natural resource products, and of increasing employment and foreign exchange earnings.

The Philippines is an established producer of processed tropical fruit and it was selected as an example of a country in which problems, constraints and prospects could readily be identified.

Section 2

Product description

INTRODUCTION

A simple definition of the product is not possible, owing to the great diversity of tropical fruit and processing methods encountered in different parts of the world.

The earlier ITC report *Markets for exotic fruit products in the United Kingdom, the Federal Republic of Germany, Switzerland and the Netherlands* examined the markets and the variety of processed products of some fifteen fruit, including items such as mangoes in brine, guava jelly and other assorted preserves, chutneys and pickles. This report concentrates on those products which have markets offering potential growth prospects, the main items being tropical juices and drinks and canned fruit.

PRINCIPAL FRUIT

Mango

The mango (*Mangifera indica*) is one of the most important and widely cultivated tropical fruit. The fruit is oval shaped and contains a large flattened seed. The outer skin is variously coloured in shades of red, orange and yellow, and fruits are typically 7 cm in diameter and 12 cm in length. The flesh surrounding the seed is yellow to orange colour, juicy and with an aromatic flavour. Mangoes are a source of vitamins A and C.

The most common form of processed mango is mango pulp but the fruit is also canned in syrup, either whole or sliced. Mangoes preserved in brine are used in the manufacture of chutney. Mangoes are also bottled and dried and are frequently used as a base for preserves, pickles, jam and sauces. India is the main producer of these products.

Mango pulp is derived from sound mangoes that have been properly ripened and possess a fully developed flavour. The fruit is cleaned, pulped and strained before either aseptic filling or freezing. For frozen pulp the product should be chilled before filling and then frozen promptly and stored at 5°F. Frozen pulp should be packed in new, clean, polyethylene bags, usually containing 25 kg net. Canned (hot pack) pulp is normally packed in suitably lacquered A10 cans holding 3 kg net. They should be stored at temperatures not higher than 70°F. Mango pulp can also be preserved with sulphur dioxide, which is sometimes more attractive than canning due to the high cost of the cans, but may impart off-flavours to the pulp and can also infringe import regulations on the use of preservatives. Mango pulp is not commonly traded in this form.

Mango pulp has a wide variety of uses, including baby foods, frozen dessert, ice-cream, yoghurt, drinks, bakery products, syrups and toppings.

Guava

Guava (*Psidium guajava*) fruit are native to tropical America and are round to pear shaped. They measure up to 7.5 cm in diameter though usually are much smaller, and weigh between 30 g and 400 g. The skin colour ranges from yellowy green to orange, while the flesh is white or pinky red depending on variety. Guavas have a fresh tangy flavour, a strong characteristic aroma and are rich in vitamin C and niacin.

Guavas are most commonly canned as halves in syrup. South Africa is the largest exporter. In both the West Indies and the Philippines guavas are used in jelly making for which they are ideally suited because of their particularly favourable ratio of acid, pectin and sugar. In Brazil a thick jam, known as goibada, is manufactured and sold extensively. A similar product known as guava cheese or guava paste is also made in Florida and the West Indies.

Guava pulp also features in world trade and is obtained by processing sound ripe guavas. The fruit is trimmed, pulped, strained and de-aerated. The packaging and storing of guava pulp is similar to that for mango pulp as are its end uses.

Papaya

The shape and weight of papaya (*Carica papaya*) differs according to the variety. Some are oblong and weigh 3–6 kg while others are pyriform and much smaller. The flesh is thick and yellow to orange, soft and juicy, and surrounds a central cavity containing numerous brown-black, pea-sized seeds.

The fruit is an excellent source of vitamin C and also contains some vitamin A and vitamin B.

Papaya is primarily consumed fresh but is also canned in balls, slices and chunks, notably in Hawaii where production is considerable. Papaya pulp is less common and is manufactured in a similar way to mango pulp. Its packaging, storage and usage are also similar to those of mango.

Passion fruit

There are two types of edible passion fruit, the purple-skinned variety (*Passiflora edulis* f. *edulis*) and the yellow-skinned variety (*Passiflora edulis* f. *flavicarpa*). The former is grown in Australia, Papua New Guinea, South Africa and East Africa, and the latter in Fiji, Hawaii and Latin America. Each fruit is oval or round, 3–10 cm in length, and weighs approximately 30 g. The fruit develops on a vine having a 3-year lifespan.

A wide range of passion fruit products is produced, such as juices, nectars, jams, squash, pulp, fruit in syrup, etc., but juice is the most important product featuring in world trade. Passion fruit juice has a strong, distinctive flavour and because of its high acid content it is not consumed directly. Sugar and water are normally added to make it palatable, and it is commonly used in drinks, nectars, jellies and ice-creams.

On the basis of field work, TDRI estimates that commercial passion fruit production for juice reached 120,000 tonnes of fruit in 1982. Brazil accounted for 75 per cent of total world production followed by Colombia (10 per cent) and Sri Lanka (7 per cent). Other producers include Ecuador, Peru, Kenya, Taiwan, Malaysia and the United States (Hawaii).

Assuming a juice yield of 32% by weight, global commercial production of passion fruit juice is estimated to be in the order of 38,000 tonnes.

Tropical fruit salad

Tropical fruit salad (or cocktail) consists of a pineapple base (45–65 per cent) with added tropical fruits such as papaya (25–50 per cent) and banana (5–15 per cent).

The medium is usually syrup or passion fruit juice and other fruits such as mango, guava, mandarin orange or cherry are sometimes added.

Tropical fruit salad entering trade is normally in canned form.

MINOR FRUIT

The remaining fruit are of lesser economic importance than those already discussed and are usually eaten fresh. In processed form they are more commonly found in their production areas or countries, although most enter international trade to some extent. For consumption in the major markets they are usually canned, although some can be found in dried form. In a few cases juices are also available.

Lychee (*Litchi chinensis*), longan (*Euphoria logana*) and mangosteen (*Garcinia mangostana*) figure prominently among the more exotic fruits and are processed and canned in the Far East. There is an extensive international trade catering principally for consumption in restaurants serving oriental food.

Lychee

A native of China, the lychee fruit is shaped like a plum, 3–4 cm long and grows in bunches. When ripe the skin is dark red in colour, scaly and shell-like in texture. Underneath, the flesh is pearly white, translucent, jelly-like and sweet. In international trade lychees are traded fresh and more commonly in cans. Lychee juice occasionally features in international trade also.

Longan

The longan is related to the lychee and is similar in appearance. The skin tends to be light brown. Only canned longans enter international trade and they are considerably less common than lychees, for which they are a substitute.

Mangosteen

The mangosteen is one of the most famous tropical fruits and is a native of the Malay region. The fruit is typically some 6–8 cm in diameter with a thick leathery rind which becomes purple when the fruit is ripe. Inside are 5–7 segments of white jelly-like flesh, which is sweet and slightly acid. Fresh fruit can occasionally be found outside the producing areas but is more commonly canned. It is not widely traded at present.

Custard apple

Custard apple (*Annona reticulata*) originates in tropical America and is large, brownish-yellow, heart-shaped and about 8 cm or more in diameter. The skin is thin and within this is a cream-coloured, sweet, juicy pulp in which there are many seeds. The fruit is commonly eaten fresh but the pulp is used for making custard, sherbert and ice-cream.

Cashew

The cashew (*Anacardium occidentale*) is native to South America. The main economic product is the nut, from which an edible kernel and cashew nut shell liquid, an industrial raw material, are obtained. The nut is borne at the end of a false fruit, the 'apple' which can be eaten fresh and is also used for making juice, confections, wine, alcohol and vinegar.

Soursop

Soursop or guayabano (*Annona muricata*) is a native of tropical America and grows all year round. It is a green pear-shaped, warty fruit with soft spines, and grows as big as a football. Its white fleshy pulp has a sweet and sour flavour. It is generally eaten raw although it is rather too acid to eat on its own. It is commonly used to make drinks and ice-cream and is a major source of vitamin C.

Sugar apple

Sugar apple or sweetsop (*Annona squamosa*), is indigenous to tropical America. It is heart-shaped, about 6–9 cm in length and composed of loosely covered carpels rounded at the extremities. The pulp is soft white, juicy and with a mild, very agreeable odour, enclosing numerous smooth black seeds. It is commonly eaten fresh but is also used in the manufacture of ice-cream and sherbert.

Rambutan

Rambutan (*Nephelium lappaceum*) is indigenous to the Malay archipelago and Indonesia. It varies in shape from round to oval and is covered with soft fleshy spines. The edible juicy pulp is pearly white and translucent and is covered with a leathery skin. It is commonly eaten fresh and is also frequently found in canned form.

Jack fruit

Jack fruit (*Artocarpus heterophyllus*) grows in the regions between India and Malaya. The oblong fruits are borne singly or in clusters, weigh as much as 22 kg, and can reach up to 1 m in height. The skin is rough with hard, pointed studs all over the surface and is brown yellow in colour. The flesh is soft, juicy, rich in sticky, white latex, sweet and very aromatic. Again the flesh is commonly eaten fresh but is also canned and is traded on international markets.

Kalamansi

Kalamansi or kalamondin orange (*Citrus mitis*), is a citrus fruit native to the Philippines. The fruit is small and subglobose ranging from 3–3.5 cm long and up to 4.5 cm in diameter. Each fruit has 7–10 segments. The rind is very thin, its juice is very acidic and it is commonly used in juices, drinks and flavourings.

Section 3

Exporting countries and territories

Although several of the major producing countries publish figures relating to some of their processed fruit exports, these are often no more detailed than the import statistics of the market countries. Such exports tend to be undefined and aggregated in a residual category. Other known exporters do not publish relevant data.

This section reviews the known information on some of the exporting countries, using, where available, their published statistics. Several countries, for example, Peru, Puerto Rico, Madagascar, China and the Dominican Republic, have been excluded because of the lack of relevant statistics.

BRAZIL

Table 1 shows Brazil's published exports of processed tropical fruit, 1979–82.

Table 1

Brazil: exports of processed tropical fruit

Product					tonnes
	1979	1980	1981	1982	US\$'000 (1982)
Passion fruit juice	1,840	2,623	4,786	7,784	16,485
Cashew juice	....	7	321	588	612
Guava juice	....	1	618	1,168	871
Guava paste	....	3,291	2,165	2,028	1,322
Canned papayas	....	....	409	247	194
Canned mangoes	....	222	43	202	213
		(6,144)	(8,342)	(12,017)	(19,697)

Source: Brazil Trade Returns

Note: ... not available

The most obvious feature of the table is the huge increase in exports of passion fruit juice in recent years. Indeed by 1982 these exports had increased by 323 per cent over 1979 levels. Exports of guava juice have also increased dramatically, while exports of guava paste have declined steadily since 1980.

The major destinations for Brazilian exports are the Netherlands and West Germany, reflecting the dominance of the blending house trade in those countries. In 1982, 72 per cent of Brazil's exports of passion fruit juice, 64 per cent of cashew juice and 99 per cent of guava juice were shipped to the Netherlands while 24 per cent of passion fruit juice exports were consigned to West Germany. In the case of guava paste exports, 45 per cent went to the United States and 43 per cent to Puerto Rico.

Brazil's increased production of passion fruit juice has flooded the European market and has caused severe downward pressure on prices (*see* Section 4 *Prices*). Prices

have fallen so much that producers world-wide are believed to be exporting at less than the cost of production. This is made easier for Brazilian producers because of the government's policy of subsidising the export of processed and semi-processed products with an agricultural base.

PHILIPPINES

Table 2 shows recent Philippine exports of processed tropical fruit. Unfortunately Philippine trade statistics do not show exports of exotic fruit juices or pulps; however they do show fruit salad/fruit cocktail exports, much of which is tropical fruit cocktail, probably the Philippines' most important tropical line.

Exports of tropical fruit cocktail and individual exotic fruits however were relatively static between 1979 and 1981. The major destinations of all these products are the United States and Canada. Saudi Arabia is a developing market, due partly to the recent influx of Filipino migrant labour.

In 1981 the United States took 47 per cent of Philippine fruit cocktail exports, while the United Kingdom was the next largest market with 20 per cent, followed by Japan with 11 per cent and Canada with 8 per cent. Although there is little supporting evidence in the statistics, Philippine exporters believe that Japan is a potential growth market and attempts are being made to penetrate the market for canned fruits.

The United States Drug Administration (USDA), gave Philippine production of tropical fruit salad in 1980 as 18,500 tonnes, which means that at least 11,000 tonnes were consumed domestically. In 1981 the Philippines recorded exports of glacéed tamarind (22 tonnes), dried mangoes (118 tonnes) as well as fruit purées/pastes (2,003 tonnes) and fruit pulp (726 tonnes).

Table 2

Philippines: exports of processed tropical fruit

Product	tonnes		
	1979	1980	1981
Canned jack fruit	116	87	106
Canned palm fruit/kaong	113	124	147
Canned mangoes	150	167	69
Canned santol	5	4	9
Fruit salad/cocktail	7,429	10,125	7,062

Source: Philippine Trade Statistics

As for tropical juices, the Philippines is a significant exporter of semi-processed purées and pulps such as mango, guava, papaya, kalamansi, cherimoya, and soursop as well as juices and nectars of these small fruits. Other tropical fruit products being exported include guava jelly, mango jam and canned papaya. At least one company has tried (unsuccessfully) to export passion fruit juice.

There are several firms operating in the export trade including subsidiaries of the United States multi-nationals Dole and Del Monte. A list of companies exporting processed tropical fruit is included in Appendix III. The major companies operating in this sector are well established and a trend towards concentration has been reinforced by backward integration into raw material production. The reason for this is an attempt to overcome one of the major constraints to fruit processing in the Philippines, that is, problems with procuring raw materials. In the Philippines the domestic price for tropical fruit frequently exceeds the export price and consequently processors have varying degrees of difficulty in procuring supplies to meet overseas orders. Several exporters expressed the view that the resulting uncertainty of supplies caused them more problems with their agents overseas than would a higher export price.

Another very important constraint is the shortage of cans and other packaging materials. These are domestically manufactured but deliveries can be irregular.

Most companies prefer to sell f.o.b. with payment by irrevocable letter of credit, although they will accept c.i.f. terms if necessary.

INDIA

Because of the size of its mango processing industry India is the world's major producer and exporter of all processed tropical fruit. Unfortunately India does not show exports of any other processed fruit other than dried tamarinds and it is assumed that such exports are included in the residual 'other' category. Table 3 shows Indian exports, 1977/78 to 1980/81, of processed mangoes (which show a distinctly rising trend over the five years covered), and of dried tamarinds. In 1980/81 nearly 22,000 tonnes of mango products were exported. This represents a 47 per cent increase on the 1977/78 figure.

The largest category in total exports of processed tropical fruit from India is mango juice, of which a 68 per cent increase in the final year of the series was recorded. This was a consequence of the re-entry into the market of the Soviet Union, for a consignment of over 4,000 tonnes as part of a barter arrangement.

An interesting feature of all the products covered is the diversity of export markets and the tendency of some countries, notably the Soviet Union, to enter and leave the market at random. In 1980/1 the Soviet Union imported 4,140 tonnes of mango juice, in 1979/80 none at all, in 1978/9 370 tonnes, and in 1977/8, 2,488 tonnes. In the period 1972/3 to 1976/7 (prior to the time series indicated in Table 3), the Soviet Union imported considerable quantities of mango juice from India, for example, about 8,000 tonnes in 1972/3.

The Yemen (North) is also a major importer, although demand has tended to fluctuate year by year as in Saudi Arabia and Ethiopia. These four countries are the largest markets, followed by the United Kingdom, the United Arab Emirates and Switzerland.

The Soviet Union has not imported mango paste from India since 1977/8 but otherwise the above countries are the principal markets for this product. In 1980/1, 881 tonnes (23 per cent) were exported to Saudi Arabia and 750 tonnes (20 per cent) were consigned to the Yemen (North), while 605 tonnes (16 per cent) were despatched to the Netherlands.

Table 3

India: exports of processed tropical fruit

Product	tonnes			
	1977/78	1978/79	1979/80	1980/81
Mango juice	6,295	5,743	5,728	9,648
Mango purée and paste	3,439	2,570	1,981	3,767
Mango squash	...	...	37	65
Mango flour	43	16	8	12
Mango chutney	3,896	6,180	6,180	5,081
Mango slices in brine	832	2,214	2,050	2,769
Dried mango slices	343	304	739	542
TOTAL	14,848	15,670	16,723	21,884
Dried tamarinds	3,824	3,187	4,415	3,366

Source: Indian Trade Returns

Note: ... not available

Of the other products exported, mango chutney is of major importance, with 5,081 tonnes exported in 1980/1. The major markets for this product in 1980/81 were Iraq (33 per cent), the United Kingdom (22 per cent) and Kuwait (6 per cent). Total exports of mango slices in brine in 1980/1 were 2,769 tonnes. The destinations for this product were the Soviet Union (29 per cent), the United Kingdom (15 per cent), the Yemen (North) (12 per cent) and Saudi Arabia (12 per cent). In 1980/81, 3,366 tonnes of dried tamarinds were exported to several destinations, the most important being Iraq, the United Arab Emirates, Saudi Arabia, Egypt and the United Kingdom. India also exports papaya, guava, sapodilla, lychee and other rarer fruits in pulped form, but in much smaller quantities. Export figures are however not available.

Most of the pulp exported is for the manufacture of juices, nectars, yoghurts, and ice cream, and is packaged in A10 cans, although retail packed cans of mango pulp and bulk-packaged 20–200 kg aseptic containers are also produced. At least one large Indian group is actively promoting export marketing in Europe.

JAMAICA

Jamaica publishes some statistics relating to its exports of processed tropical fruit. These are shown in Table 4. These exports are very small compared to those of the exporters already discussed and they are believed to be very specifically aimed at the large West Indian communities in markets such as the United Kingdom and Canada. The other Caribbean islands are the third largest destination for Jamaican processed tropical fruit.

Exports of mango pulp from Jamaica ceased altogether in 1982, due most probably to uncompetitive pricing, itself a consequence of the high domestic prices for raw materials.

Table 4

Jamaica: exports of processed tropical fruit

Product	tonnes		
	1980	1981	1982
Guava jelly	65	72	84
Mango pulp	28	7	—
Canned mangoes	26	71	23
Canned ackees	250	290	390

Source: Jamaica Trade Statistics

Note:—nil/negligible

FIJI

Fiji publishes figures for the export of both passion fruit juice and passion fruit pulp. These have been fairly constant in recent years and are shown in Table 5.

Table 5

Fiji: exports of processed passion fruit

Product	tonnes		
	1979	1980	1981
Passion fruit juice (litres)	121,396	113,445	114,410
Passion fruit pulp (tonnes)	78.9	73.2	78.7

Source: Fiji Trade Statistics

The major destinations for these products are Australia, New Zealand and the west coast of the United States.

KENYA

Kenya shows only exports of passion fruit juice in its trade returns. These were as follows:

Table 6

Kenya: exports of passion fruit juice

1979	1980	1981
374	tonnes 417	318

Over the three years shown, no less than 81 per cent of exports have gone to the Netherlands, almost certainly on behalf of Passi AG who own a passion fruit processing factory in Kenya (*see Section The mass market in Europe*). Almost all the remaining juice is sent to West Germany.

SRI LANKA

The most important processed tropical fruit featuring in the Sri Lankan trade returns is passion fruit juice although preserved mangoes and mango juice are also recorded. Recent exports are shown in Table 7.

The majority of Sri Lankan exports, amounting to nearly 2,000 tonnes of passion fruit juice were consigned to Europe in 1981. Of this, 60 per cent went to Switzerland (probably to Passi who at that time owned a factory in Sri Lanka, although it is understood that this contract may have since terminated), 28 per cent to West Germany and 13 per cent to the Netherlands. These figures emphasise the importance of Sri Lanka as a major world passion fruit juice exporter.

Table 7

Sri Lanka: exports of processed tropical fruit

Product	tonnes	
	1980	1981
Passion fruit juice	1,349	1,952
Mango juice	4	...
Mangoes: preserved, tinned, bottled	12	4

Source: Sri Lankan Trade Statistics

Previous attempts to increase passion fruit juice exports from Sri Lanka have traditionally been constrained by a poor supply of raw materials, and problems in the collection and storage of fruit. Manufacturers with firm medium-term orders, willing to develop fruit production, have also had difficulties obtaining land allocations.

The government sector, i.e. the Sri Lanka State Trading Corporation, has historically been dominant in the fruit processing industry but has recently been partially privatised.

Exports of passion fruit juice have been of single strength, hot-packed in A10 cans.

THAILAND

Thailand does not publish figures for the export of tropical juices but does show some returns for other processed fruit. These are shown in Table 8.

The major tropical fruit exported from Thailand is rambutan which is packaged both with and without pineapple. In total, 1,935 tonnes of these lines were exported in 1982. Canned longan is the next largest export; 906 tonnes being exported in 1982.

Table 8

Thailand: exports of processed tropical fruit

Product	tonnes		
	1979	1981	1982
Lychee in airtight containers	—	15	12
Rambutan in airtight containers	289	501	656
Longan in airtight containers	100	359	906
Rambutan and pineapple in syrup	473	1,308	1,279
Mango in syrup	49	145	220
Papaya in syrup	14	5	103
Guava in syrup	...	...	3

Source: Thailand Trade Returns

Notes: ... not available
— nil/negligible

Exports of almost all these fruits are rising and the total tonnage exported in 1982, 3,179 tonnes, was 244 per cent above the corresponding figure for 1979. The major destinations for Thai exotic fruit exports are the United States, Singapore (for re-export) and Europe.

MEXICO

The most recently available statistics for Mexico are for 1977, and show exports of some 680 tonnes of guava paste, 63 per cent of which were destined for the United States. 1,728 tonnes of 'other' fruit paste were also exported, probably including mango and papaya paste, of which Mexico is known to be a producer.

SOUTH AFRICA

The only processed tropical fruit statistics recorded in the South African trade returns are the export values of canned guavas and tamarind pulp which are indicated below.

Table 9

South Africa: export values of canned guava and tamarind pulp

Product	tonnes		
	1980	1981	1982
Canned guava	411	402	511
Tamarind pulp	3,359	3,511	3,313

The extent of South Africa's tamarind pulp exports is particularly interesting when compared to the export of canned guavas, for which South Africa is more renowned; unfortunately export destinations for these commodities are not shown. South Africa also exported 'other juice' to the value of 14 million rand in 1982, which probably included other exotic fruit flavours, as a minor component.

TAIWAN

Taiwan publishes the most detailed statistics of all the exporters reviewed, but unfortunately the figures are only available by value (see Table 10). A considerable range of export products is recorded, the largest foreign exchange earnings being from canned lychee, canned longan and mango drink. Average earnings of over US\$30 from processed tropical fruit exports in 1980 and 1981 place Taiwan after India as an exporter, and ahead of Brazil, according to the latter's trade statistics (see Table 1).

Table 10

Taiwan: exports of processed tropical fruit

Product	US\$'000	
	1981	1982
Frozen guava	38.6	45.8
Frozen lychee	274.0	13.9
Frozen mango	130.8	66.7
Frozen papaya	179.5	118.4
Canned lychee	15,671.0	13,666.0
Canned longan	7,127.8	4,952.3
Canned guava	8.9	78.4
Canned loquat	324.4	173.4
Canned papaya	147.5	216.4
Canned mango	1,766.5	1,897.1
Canned carambola	11.0	10.4
Mango juice	506.1	0.9
Lychee juice	46.3	—
Carambola juice	0.8	0.4
Passion fruit juice (single strength)	781.0	691.9
Passion fruit concentrate	111.0	39.1
Guava drink	283.8	176.2
Mango drink	6,579.2	4,815.5
Passion fruit drink	152.6	11.8
Lychee drink	68.3	50.7
Carambola drink	10.3	7.3
Guava purée	11.4	114.0
Mango purée	133.5	61.9
Papaya purée	5.7	16.1
TOTAL	34,369.9	27,224.6

Source: Taiwan Trade Returns **Notes:** —nil/negligible for some items three separate categories are aggregated

PAKISTAN

The only relevant figure shown in the Pakistani Trade Returns is for exports of mango juice. In 1980/1 there were no exports of this product, while in 1981/2, 1 tonne was recorded.

ECUADOR

No figures are available for exports of processed tropical fruit from Ecuador; however, it is known that there are some fruit juice producers, most of whom are solely concerned with the domestic market. One company, Ecuajugos, is a major exporter. The company was established in 1981 and produces ten types of juice in one or more of the following forms: concentrate, single strength and carbonated. The total single strength production of exotic juice by Ecuajugos in 1983 was expected to be as follows:

Product	tonnes
Passion fruit juice	1,500
Mango juice	500
Papaya juice	100

HAWAII

As it is part of the United States, no separate figures are available for the export of processed tropical fruit from Hawaii. However the USDA Agricultural Statistics 1982 includes figures for the processing of papaya. These are shown below and indicate the considerable size of the papaya industry in Hawaii, which is the main source of supply for the United States' west coast.

Table 11

United States: production and processing of papaya

Year	Papaya production (tonnes)	Processed papaya (tonnes)
1974	16,618	1,203
1975	17,811	2,207
1976	22,338	2,879
1977	28,370	4,268
1978	28,571	4,186
1979	18,310	2,040
1980	21,838	1,588
1981	41,964	2,424

European markets for pulps, purées and juices of 'other' fruit and vegetables

INTRODUCTION

The nature of the European market and the quality of the data available has necessitated that the four EC markets visited—France, West Germany, the Netherlands and the United Kingdom—are reviewed together rather than as individual markets. Import statistics relating to the individual EC countries are included in Appendix I and the data has been summarised in Table 12. Switzerland is reviewed separately.

As already explained in Section 1, processed tropical fruit imported into the EC are included in the statistics as a residual category entitled 'other' and are not singled out individually.

Imports of both canned fruit and juices are listed under the headings of orange, grapefruit, other citrus, pineapple, tomato, apple, pear, grape and 'other'. This last category includes tropical fruit and is the one analysed here. However, it also includes other non-tropical fruit such as: kiwi fruit, persimmons, plums, cherries, berries. Derivation of product identity is only feasible under these circumstances by scrutiny of the supplying countries listed and the relative values of their products, as well as by discussion with the trade.

In Switzerland, only grape, lemon and vegetable juices are specifically identified. There are also two other categories, fruit pulp and fruit purée, both of which are split into 'tropical' and 'other' sub-divisions. The latter includes significant inputs from tropical countries which are assumed to be bananas and citrus.

THE EUROPEAN COMMUNITY (EC) MARKET

Imports of all pulps, purées and juices into the EC are listed according to whether their specific gravity is greater than, or less than, 1.33 at 15°C.

Imports of 'other fruit and vegetable juices' with specific gravity exceeding 1.33 into the four EC countries reviewed were less than 2,000 tonnes in 1981. As far as is known, minimal amounts of tropical juices are included in this category. Exporters tend to avoid trading in tropical juices of such high specific gravities (which imply high concentrations) partly because of the quality problems associated with concentrating tropical juices to this degree, and also because imports to the EC in this category attract a tariff of 42 per cent.

This report focuses on imports of 'other juices' with a specific gravity of 1.33 or less. The market for this category is relatively large (see Table 12). In 1981, 45,930 tonnes were imported into the four countries under review, although only 12,134 tonnes (or 26 per cent) originated in developing countries. Nonetheless, it is clearly a growing market. Total imports (which include an element of double counting related

Table 12

France, Federal Republic of Germany, the Netherlands and the United Kingdom: imports of 'other' fruit and vegetable juice*

	1978	1980	1981			
			Q	% total	V	U.V.
TOTAL	26,798	34,783	45,930	100	62,562	1,362
Total developing countries and territories† listed in national statistics	2,502	11,030	12,134	26	23,180	1,910
of which from:						
Kenya	385	1,130	1,158	3	3,218	2,779
Colombia	—	229	440	1	947	2,152
Peru	152	492	792	2	1,476	1,864
Brazil	728	5,163	5,867	13	12,509	2,132
Sri Lanka	345	1,542	2,644	6	3,191	1,207
Taiwan	44	125	386	1	594	1,539
India	46	60	22	—	29	1,318
Jamaica	68	76	30	—	24	800
Chile	—	57	62	—	150	2,419
Fiji	—	—	64	—	123	1,922
Dominican Republic	—	130	44	—	64	1,455
Thailand	—	20	26	—	47	1,808
Mexico	—	—	20	—	52	2,600
Philippines	—	9	6	—	10	1,667
Morocco	1	20	54	—	49	907
Argentina	387	297	381	1	517	1,357
Malaysia	—	68	113	—	122	1,080
Total EC	17,216	20,338	24,735	54	26,548	1,073

Source: Overseas Trade Statistics of the respective countries

Notes:

it is assumed that these figures are mostly other fruit juices and that imports of vegetable juice 'other' than tomato juice are very small; it presumably includes carrot juice, V8 juice, etc.

* of specific gravity <1.33@15°C including mixtures

† it must be assumed that these figures inflate the real level of imports as re-exports from particularly the Netherlands and West Germany are double counted.

Q = tonnes

V = US\$'000

U.V. = unit value (US\$/tonne)

to EC re-exports) have risen by 71 per cent in the three years since 1978, while supplies from developing countries (which are not double counted) have risen by 385 per cent during the same period.

It should be pointed out that the size of the market for tropical juices in the individual European countries cannot be determined solely by examining imports from tropical countries. The bulk of European imports are shipped via Rotterdam or Hamburg and considerable re-exports take place from these parts, either as re-shipments or exports of further processed products.

The unit values of imports from different countries in this category vary considerably. For example, the average unit value of all imports in 1981 was US\$ 1,362 per tonne, whereas for imports from developing countries only it was US\$ 1,910/tonne. The average unit values for imports from developing countries ranged between US\$ 2,779/tonne for Kenya to US\$ 800/tonne for Jamaica. This difference highlights two problems which arise from the grouping of statistics in this way. Firstly, a range of juices is included, some of much higher value than others. Passion fruit, for instance, has at times been more than twice the price of other exotic juices and in 1981 briefly reached a peak of over US\$ 3,000/tonne for single strength juice. Secondly, the prices are for a range of concentrations. Some countries are exporting single strength juice, others concentrates of up to 65° Brix (this is a concentration of around × 5) although exotic juices are still most commonly shipped single strength and rarely in concentrations of more than × 2. This is because of the problem of aroma loss during concentration and the need for an expensive aroma recuperator which the low throughput of most plants cannot justify.

The largest developing country supplier is Brazil, providing 5,867 tonnes in 1981, representing 13 per cent of total imports by quantity and 20 per cent by value. It has predominantly supplied passion fruit juice, mango juice, papaya juice and guava juice, but also cashew apple juice, pomegranate juice, naranjilla juice, umbu juice and cherimoya juice. As described in Section 3, recent Brazilian exports of passion fruit juice to Europe have risen dramatically and in 1982 stood at 7,784 tonnes; of these 72 per cent went to the Netherlands and 24 per cent to West Germany.

At the end of 1982, c.i.f. prices for tropical fruit pulps and juices from Brazil varied from US\$ 750 per tonne for single strength papaya juice to US\$ 1,800 for single strength cherimoya juice. Brazil's largest item was however passion fruit juice followed by mango juice, prices for which were less than US\$ 1,000 single strength in late 1982/1983.

The next largest suppliers are Sri Lanka with 2,644 tonnes, predominantly of passion fruit juice, and Kenya with 1,158 tonnes, also largely passion fruit juice. Peru with 792 tonnes, mostly passion fruit and mango juice, is the only other developing country supplier which exported more than 500 tonnes in 1981. Only seventeen developing country suppliers were listed as sending more than 5 tonnes of exotic juices to these four markets in 1981. Taiwan's exports include the juices of passion fruit, guava, mango and papaya. It is also a major source of retail packed items.

INDIVIDUAL COUNTRY MARKETS

France

Imports

Imports into France of 'other' fruit and vegetable juice of a specific gravity of 1.33 or less reached 9,529 tonnes in 1981 (see Appendix 1, Table A); 1,134 tonnes were mixtures of juices. Only 1,364 tonnes, or 14 per cent of the total, originated in developing countries, although this represents a growth of 278 per cent on 1977. However, supplies of tropical fruit juice from other EC countries, particularly the Netherlands and West Germany are significant and increasing.

More than half the supplies from developing countries were accounted for by exports from Brazil (which totalled 780 tonnes in 1981), while between them, Brazil and Sri Lanka together supplied 82 per cent. Peru was the third largest source but supplied only 77 tonnes. Imports from these three countries are believed to have been very largely passion fruit juice and mango juice although small amounts of guava, papaya and cherimoya juice were also imported. 249 tonnes of 'other fruit and vegetable juices' of a specific gravity exceeding 1.33 were imported in 1981; none however was listed as being from tropical sources.

Market profile

Consumption of fruit juice and nectar in France, excluding drinks, standing at 4.10 litres per capita per annum*, is lower than that of all the other markets considered in this report except Japan. This low level of consumption is a consequence of the long-held perception that fruit juices are an expensive luxury.

With the arrival of aseptic cartons, considerably increased promotion and more favourable prices, this is changing and consumption is higher now than it was a decade ago. Consumption of tropical fruit juices, however, is still only a fraction of total juice consumption (less than 5 per cent), and is certainly lower than in the other European markets. This may be changing however; recent juice consumption figures indicate that sales of tropical juice mixes grew by 48.5 per cent between 1982 and 1983, from 50,593 litres to 75,140 litres†. This is indicative of a similar trend in the other European markets. The main end-user of tropical fruit juices in France is

* per capita: population figures from World Bank Atlas, 1981; consumption from Union Nationale des Producteurs de Jus de Fruits, reported in *Food News*, (1983), April 15

† *Food News* (1984), March 23

thought to be the dairy industry which one importer believed took 80–90 per cent of imported pulp and purée for use in ice cream and yoghurt. The remainder of imports is accounted for by the beverage and baby food trade.

Importing tropical fruit juice is a relatively specialised trade, but importers requirements are less demanding than that of the general fruit juice trade. Different supplying countries send pulps and juices in varying types of pack and importers are still prepared to accept this; for example, passion fruit from Brazil is frozen in 45 gallon drums while that from Sri Lanka and Peru is hot-packed in A10 cans. What is essential however, is that a standard quality, a regular supply and a relatively constant price is maintained. Details of contents, weight, country of origin and destination, name of shipper, etc., should be clearly visible on the pack.

A sizeable proportion of French fruit juice imports is still supplied in pre-packed cans of between 180 ml and 250 ml capacity and are largely for the 100,000-plus immigrant community in France. The imports include: guava and passion fruit juices from Peru; a range of juices including mango, papaya, guava, soursop and passion fruit drinks and a fruit cocktail with passion fruit juice, lime juice and assorted citrus juices, all from Venezuela; a range of tropical drinks from Puerto Rico; and the YUKERY range which includes a tamarind drink, also from Venezuela. One importer estimated total pre-packed sales at around 250,000 litres.

There is also a small demand for tropical fruit pulp for ice-cream manufacture, particularly from the small companies who are more likely to experiment with new flavours. This demand is unlikely to exceed 20 tonnes of pulp equivalent; some of it is obtained from importers, other companies purchase fresh fruit from the market at Rungis.

The French market is difficult to penetrate, partly because of its particular requirements. For this reason, the services of an agent or specialised importer are essential. There are few such agents in the tropical fruit juice trade, but those that do exist have a considerable knowledge of the trade and of the differences between importing tropical fruit juice and non-tropical fruit juice. However, as in other European markets, the recent introduction of multi-juice packs has had a considerable impact on the French market. As described in the section *The mass market in Europe*, Eurocitrus in the Netherlands and Passi in Switzerland dominate this new development and traders handling these products import from these companies and not from the countries in which the raw materials originate.

The Federal Republic of Germany (West Germany)

Imports

Imports of 'other' fruit juice (excluding vegetable juices) into West Germany in 1981 totalled 20,923 tonnes, a rise of 79 per cent since 1977 (see Appendix I, Table B). Of this, 6,420 tonnes, or 31 per cent, originated in developing countries, which makes this market the largest of the EC markets studied.

An examination of developing country exports and EC imports highlights a statistical anomaly. West Germany import statistics indicate that Brazil supplied 4,184 tonnes of tropical fruit juice to West Germany. Brazilian export figures, however, show that Brazil supplied only 863 tonnes of passion fruit juice to West Germany in 1981 (1,838 tonnes in 1982). However, Brazilian statistics show exports of 3,459 tonnes of passion fruit juice to the Netherlands in 1981 while Netherlands import figures show only 888 tonnes of tropical fruit juice as being imported from Brazil. It has not been possible to resolve these discrepancies (which roughly counter-balance), although for the sake of consistency, the European import figures have been taken as the basic guide to individual market size. The West German import statistics thus indicate that Brazil is the largest supplier followed by Sri Lanka, Kenya, Taiwan and Peru, with 873, 860, 116 and 111 tonnes respectively.

Supplies from developing countries have increased by 965 per cent since 1977 and as such supplies practically define the market for tropical juices, it can be seen that demand in West Germany is considerably higher than in other European countries, particularly France and the United Kingdom. This does not however reflect demand for tropical fruit drinks but rather the expanding purchasing power of the importers and compound houses in continental Europe. Most of the developing country supplies appear to be of passion fruit juice, although other fruit, particularly mango, are also in demand. The West German market appears to accept a wide range of tropical juices; naranjilla, soursop, cherimoya and other exotics, were available.

In 1981, 10,558 tonnes of 'other' fruit juices were imported from other EC countries; some of these would have included tropical juices, particularly those from the Netherlands.

One importer provided the following estimated breakdown of demand for exotic juices in West Germany: 5,000 tonnes of passion fruit juice, 2,500 tonnes of mango juice, 800 tonnes of guava juice, 800 tonnes of papaya juice, soursop, naranjilla, pomegranate, etc. According to these figures, the supply of tropical fruit juice is 70 per cent above the level of imports from developing countries. However, as noted, a significant supply of tropical fruit juice is obtained from other EC countries. Other importers gave lower estimates of demand, particularly for passion fruit juice.

Market profile

Per capita consumption of all fruit juices in West Germany reached 20.62 litres in 1981, which is amongst the highest in the world. Per capita consumption of 'other' juices and nectars, including tropicals, is believed to be around 4.5 litres. The industry expect a total per capita consumption of 25 litres by 1985*.

Fruit juice, particularly citrus juice, consumption in West Germany has risen steadily throughout the 1970s and, as in other industrialised countries, this is attributed to increased travel and exposure to exotic flavours, increased wealth and spending power, a new awareness of health and a willingness to try out various new flavours. As in the other European markets the recent introduction of multi-fruit, multi-vitamin nectars and drinks, has no doubt further stimulated demand.

The role of packaging in these developments is important, particularly the introduction of the tetrapak; this is central to the improved image of fruit juices. It appears that the 0.2 litre 'portion' is also helping to stimulate increased sales. The proportion of the market attributed to this type of pack is not known, but this sector is believed to be less price sensitive than others and one large company, Rickertson Getrank Vertrieb, is to promote further this size of pack. The firm currently has three different varieties of multi-juice nectars so packed.

There are signs however that growth in demand in the West German market is slowing or has even stopped. Several importers reported that orders in 1982 were down on 1981 partly, they believed, because the international recession was causing a slump in demand at the top end of the market. There was also much less enthusiasm from the trade than might have been expected in the early 1980s. This may be simply a function of the low price of passion fruit juice which is at the bottom of one of its cycles, but importers were pessimistic about the chances of developing and promoting products such as these when prices could not be stabilised.

Some traders thought that the taste of exotics might not appeal to the mass market, that prices are fundamentally too high and that, as a result, manufacturers have had to modify their products, possibly to the extent of confusing and alienating customers. The trade association, Verbund der Deutschen Fruchtsaft-Industrie, has recorded rapidly rising consumption of nectars, and since these products contain less than 50 per cent juice, the impact on demand for the juice or pulp ingredient

* *Food News* (1983) April 13

is correspondingly adverse. In 1982 nectars accounted for 52 per cent of consumption of citrus juices and nectars, which category in turn accounted for 62 per cent of all juice/nectar consumption. Significantly also, although consumption of 'other' juice/nectars more than doubled between 1981 and 1982, most of this increase, 72 per cent, consisted of nectars.

Importers are concerned that if consumers are prepared to accept diluted products, the total requirements for tropical pulp could fall, leading to a further drop in sales.

The industry obtains its supplies of raw material very largely from agents, importers or compound houses although some larger beverage manufacturers purchase directly. There is some diversity in the way tropical fruit juices are packed. Whereas citrus juice is now largely obtained as a frozen concentrate, tropical juices are still acceptable either hot-packed in A10 cans or frozen, although the latter is preferred, certainly for passion fruit juice. One importer preferred packs of 20–25 kg in which the contents freeze more easily than in a bigger 45–55 gallon drum. Both types are acceptable, however.

With a few exceptions, such as to service the demand from minor consumer groups, importation of retail-packed tropical juices is rare. These juices are too expensive to ship and some importers stated also that overseas packing costs can be higher than would be incurred in Europe. Retail-packed juices also tend to be prey to the complex and changing food laws and import regulations.

The Netherlands

Imports

As discussed in the section *The Federal Republic of Germany (West Germany)* there is a discrepancy between the export figures of Brazil, the largest supplier, and the import figures of some EC countries including the Netherlands. For the sake of consistency the import figures are used here as the basis for analysis. Imports of 'other' fruit and vegetable juices into the Netherlands reached 10,034 tonnes in 1981, a rise of 95 per cent since 1977 and 45 per cent since 1979 (*see* Appendix I, Table C). 4,280 tonnes, or 43 per cent of the 1981 total, originated in developing countries. This represents a 629 per cent increase in developing countries supplies in 1977 and indicates considerably increasing demand. As in West Germany, this particularly reflects the growing purchasing power of the European compound houses. Of the 12,134 tonnes of 'other' fruit juices imported into the four EC countries from developing countries, 91 per cent is imported either into West Germany or the Netherlands.

The largest developing country supplier is Sri Lanka with 1,432 tonnes, or 33 per cent, of developing countries' supplies. Brazil supplied over half of the developing country supplies in 1980, but by 1981 this country, although still the second largest supplier with 888 tonnes, had lost its considerable share of the market. The other major developing country suppliers, in declining order of importance in 1981, were Peru with 599 tonnes, Colombia with 402 tonnes, Argentina with 312 tonnes and Kenya with 298 tonnes.

As with the other European markets, passion fruit juice is the major tropical juice imported, while mango juice, guava juice and papaya juice are some way behind. Argentina's exports are believed to be largely of temperate fruit juices.

Imports from other EC countries were 4,266 tonnes in 1981.

Exports

The Netherlands is a considerable re-exporter of tropical fruit juices, both in bulk and in retail packs following domestic blending and mixing. This is partly because of Rotterdam's traditional *entrepôt* role but also because of technological expertise in food and juice processing. The Eurocitrus BV factory at Oosterhuit is a major

source of blended and mixed drinks and juices for retailers all over Europe (see section *The mass market in Europe*).

Market profile

The domestic Netherlands market should be distinguished from the considerable demand from other EC countries for tropical fruit juice from the Netherlands compound houses. The latter outlet probably accounts for more than 50 per cent of Netherlands imports of tropical fruit juice.

Per capita consumption of fruit juice in the Netherlands in 1980 was 17.6 litres, which reflects the very real prosperity in the Netherlands. The feeling in the trade however, was that the recession was hitting the fruit juice market quite hard and that demand for tropical fruit juice was likely to stagnate or fall. The trade press* indicated that per capita consumption of juice in 1983 was likely to fall for the first time in ten years. This is variously attributed to the recession, the high US dollar rate and to the introduction of a Government tax of Fl 8.70 per 100 litres on fruit juice sales. Per capita consumption of tropical fruit juice was believed to be 0.25 litres per annum in 1980.

The compound houses which supply the trade throughout Europe were cautiously optimistic about the longer term outlook for the international market. They, and particularly Eurocitrus BV, have developed the multi-juice tropical drinks and dairy sector and feel that there is considerable room for further expansion provided competitive prices can be maintained. The sophisticated procedures which are necessary are extremely expensive, require laboratories, storage space, scientists, research funds, etc., and few agents can afford the expenditure. Accordingly, as the new multi-juice drinks are differentiated as a new and distinct product, many agents are finding themselves excluded from this market. It seems that the compound houses believe that multi-juice drinks will be the predominant form of marketing of tropical juices in Europe and that conventional agents will have difficulty penetrating this market. One source believed that some 80 per cent of tropical juice retailed in Europe was already in the form of blended mixtures.

Blending houses will take tropical juices either frozen, hot-packed or aseptically packed provided the quality and the price is right. They buy direct from the exporter and prefer highly concentrated pulp.

The United Kingdom

Imports

Imports of 'other' fruit and vegetable juice of a specific gravity of less than 1.33 reached 5,444 tonnes in 1981. The market was broadly stable between 1977 and 1980 but 1981 saw imports leap up to 129 per cent on the average of the previous four years (see Appendix I, Table D).

Significantly, however, imports from developing countries have declined since 1977. In 1977, 90 per cent of developing country supplies in this category came from Argentina, although much of this country's produce was probably temperate fruit. Argentina no longer sends any produce in this category, and since 1978 the share of the market accounted for by developing country supplies has fallen from 11 per cent to a mere 1 per cent. In fact, of total imports of 'other' juice into the four markets studied, less than 1 per cent is imported directly into the United Kingdom from the country of origin. Most of the United Kingdom's supplies are re-exports from West Germany and the Netherlands.

The biggest developing country supplier in 1981 was Jamaica with only 30 tonnes, followed by Brazil with 15 tonnes and India with 12 tonnes. Jamaica and Brazil sent a range of juices, largely passion fruit and mango. India and Pakistan have also been supplying mango juice. In 1981 2,399 tonnes of juice were imported from other EC countries.

* *Food News* (1983) January 1

As explained earlier, the statistics in this report are a composite of the many categories included in the overseas trade statistics of the countries concerned. Each category is not individually included in the report but it is worth noting in which categories growth has taken place. The main increase in imports to the United Kingdom market comes under two headings:

- 1 'Fruit and vegetable juice not containing sugar'—imports of this category which include passion fruit juice increased from 1,081 tonnes to 2,129 tonnes between 1980 and 1981 simply because of a doubling in supplies from West Germany and a trebling from the Netherlands. These supplies are obviously re-exports.
- 2 'Mixtures of fruit or vegetable juice containing added sugars'—imports in this category, presumably blends, expanded from 117 tonnes in 1980 to 2,512 tonnes in 1981, although developing country supplies fell to 10 tonnes. The rise is entirely due to an extra 2,500 tonnes of mixture from the Netherlands, and as much of this consists of tropical juices, these are clearly re-exports.

The major increase in supply from Europe reflects the important position of the European blending factories in the tropical fruit juice trade.

Market profile

Between 1978 and 1981, sales of fruit juice in the United Kingdom increased by more than 40 per cent per annum. In 1982 they increased by some 12 per cent (to 530 million litres) while estimated growth for 1983 is only 8 per cent. Despite this slowing of growth the fruit juice market has been the fastest growing sector in the United Kingdom grocery trade and this has occurred for several reasons:

- a) the availability of fruit juices by doorstep delivery;
- b) the development of and growing use of long-life/aseptic packs for juice (55 per cent of the market in 1981 as against 15 per cent in 1978);
- c) the development of own-label products;
- d) the promotion of the blended juice or drink, both in-store and in magazines and on television; and
- e) the change in breakfast eating habits to greater fruit and fruit juice consumption.

The development of this market has undoubtedly been impressive but nonetheless, with per capita consumption of juices at 9.7 litres in 1981, the United Kingdom is a long way behind many other industrialised countries, perhaps because of the high consumption of comminutes and squashes. There is clearly room for further growth, even if not at the previous high rates.

The United Kingdom market for exotic juices has two main segments: the beverage industry and the food trade. The beverage sector can, in turn, be broken down into three distinct sub-sectors:

(i) The minor ethnic groups sub-sector In this sub-sector demand varies according to the group concerned. By and large, demand is for non-blended products, whether they be nectars, juices or drinks. This sub-sector of the market is established but is very small, although demand for non-blended juices may be growing, as consumers on the mass market try these new flavours. Nevertheless, these products are not widely available outside the shops servicing this sub-sector. White guava or mango are the most popular flavours. Passion fruit flavour is not popular in this market sector, and papaya products are rare. During field research, juices of tamarind, soursop and lychee were also encountered. Taiwan is the most popular source of supply for most of these drinks, essentially because it appears to be able to supply them most cheaply.

The vast majority of the products imported by this sub-sector enter already packed as 'drinks', usually in cans of around 240 ml, although 250 ml tetrapacks are

becoming more frequent, as are 1 lb bottles. Importers find it cheaper to import finished products than to import pulp and reprocess it. The emphasis lies on locating regular sources of supply, attractive packaging and competitive pricing. A carton of 30 x 240 ml cans of guava, mango or passion fruit juice from Taiwan sold at around £5.00–6.00 c.i.f. in early 1983, while one importer reported buying 250 ml tetrapacks from Taiwan, delivered to his premises for £3.30 per carton of 30.

(ii) The health food sub-sector It appears that demand for tropical fruit juices in the United Kingdom food trade is less than in similar outlets elsewhere in Europe. As a rule the health food trade does not market products with added sugar and most of the pre-packed single strength juices available have added sugar. Where tropical fruit juices are found they are often the blends such as are also found in the supermarkets and grocery trade (*see below*).

(iii) The mass market sub-sector It is in this sub-sector that the main growth has occurred and where there is still the greatest potential. Demand is almost entirely for blended drinks or juices, since pure tropical fruit juices are too expensive, and perhaps too much of an acquired taste, for the mass market.

All the major supermarkets now carry lines of blended tropical fruit drinks, usually including mango, guava, papaya and passion fruit and as many as 5–6 other juices. These blends are usually prepared in Europe, and, as stated earlier, the huge rise in imports from the Netherlands in 1981 is a reflection of the degree of penetration which the European blenders have achieved. Multi-juice blends are marketed as drinks because of the additives included and most of the growth in demand has been for drinks in long-life 1 litre packs, although the smaller 200 ml pack market expanded by 50 per cent in 1982.

Tropical fruit drinks did not benefit from the original surge in fruit juice consumption at the end of the 1970s, but as manufacturers look for new flavours to promote, demand is growing. Fruit juice consumption per capita in the United Kingdom is still relatively low, as stated earlier, and there is thus scope to expand sales further. There is also every reason to believe that tropical fruit drinks can begin to replace carbonated drinks and comminutes and perhaps even some of the minor juices such as apricot and pear, provided they remain price competitive.

A major acceptability problem that tropical fruit drinks may face is that many juices have for some time been positively promoted on a basis that they are free of additives and are pure 100 per cent juice, which tropical fruit drinks patently are not. For this reason the manufacturers are looking to the carbonated drinks and comminutes market as potential penetration areas.

Around 90 per cent of all juice imports are estimated to come through agents in the London area. In the case of tropical fruit juices however, more than half of the beverage requirements are imported direct from compound houses in Europe. The food trade (i.e. the baby food industry, the canning trade, yoghurt manufacture, etc.) commonly procures its supplies from agents, and probably accounts for 10–20 per cent of tropical fruit juice sales.

Switzerland

Imports

Just as in the other markets studied, the import figures for fruit juice in Switzerland are highly aggregated. Grape, lemon and vegetable juices are separately categorized but all other juices are shown together, either with sugar or without. These 'residual' categories are shown in full in Appendix I, Tables 5 E and F and are summarised in Table 13.

In 1981, 22,735 tonnes of 'other' fruit juice were imported, a rise of 25 per cent since 1977. Imports from developing countries in 1981 were 9,697 tonnes, a rise of 104 per cent since 1978, the first year in which countries of origin were recorded. In both

Table 13

Switzerland: imports of 'other' fruit juices

	1977	1978	1979	1980	1981	Q	% total	V	V\$	UV
Total Q	18,261	16,391	19,092	19,986	22,735	100		58,265	29,663	1,305
V	39,701	38,883	44,376	47,278	58,265					
Total developing countries and territories listed of which from:	...	4,758	6,870	7,786	9,697	43		22,965	11,692	1,206
Ivory Coast	...	—	—	—	9	—		11	6	667
Kenya	...	18	24	12	32	—		105	53	1,656
Iraq	...	20	—	34	81	—		111	57	704
Sri Lanka	...	7	—	5	43	—		152	77	1,791
Thailand	...	—	—	—	7	—		34	17	2,429
Taiwan	...	—	—	—	13	—		49	25	1,923
Philippines	...	—	31	65	81	—		160	81	1,000
Mexico	...	26	16	74	41	—		198	101	2,463
Dominican Republic	...	—	—	—	17	—		42	21	1,235
Brazil	...	3,844	5,905	7,093	9,021	40		20,930	10,656	1,181
Argentina	...	795	829	457	336	1		1,030	524	1,560
Peru	...	—	—	3	10	—		114	58	5,800
Morocco	...	34	—	—	—	—		—	—	—
Swaziland	...	13	48	—	—	—		—	—	—
India	...	1	—	—	4	—		10	5	1,414
Venezuela	...	—	12	5	—	—		—	—	—
Libya	...	—	—	35	—	—		—	—	—
Puerto Rico	...	—	5	3	3	—		19	10	3,852
EC	...	5,205	4,834	5,189	5,787	25		15,290	7,784	1,345
United States	...	2,414	2,116	3,148	2,953	13		6,834	3,479	1,178
Israel	...	1,814	2,767	2,124	2,612	11		6,148	3,267	1,251

Source: *Statistique annuelle du commerce extérieur de la Suisse*

Notes:

- nil/negligible
- ... not available
- US\$ 1.00 = SF 1.9642
- Q = tonnes
- V = SF'000
- V\$ = US\$'000
- UV = US\$/tonne

the total and total developing country categories the vast majority of imports were not tropical fruit, in the sense that this word is used in this study, but citrus, and this is reflected in imports from Brazil 9,021 tonnes in 1981. The main suppliers of passion fruit juice, mango juice, guava juice and other non-citrus tropical juices are Brazil, the Philippines, Sri Lanka, Peru, Mexico and Kenya.

The unit values of imports from the various developing countries vary from US\$ 667/tonne for imports from the Ivory Coast through US\$ 1,000/tonne for the Philippines, US\$ 1,791/tonne for Sri Lanka and US\$ 2,463/tonne for Mexico, to a high of US\$ 5,800/tonne for Peru. This huge diversity in unit values reflects the diversity and range of concentrations of juices imported.

Imports of other fruit juices from the EC in 1981 were 5,787 tonnes, mostly from the Netherlands and West Germany. Much of Switzerland's market for tropical fruit juice is in fact supplied by the compound houses in the Netherlands and by agents in West Germany. Direct imports from developing countries do not therefore properly quantify the market.

While Swiss import figures do not provide a breakdown of juices by type, imports of fruit pulp are broken down into tropical and other categories. The figures for the tropical category, which exclude pineapple and citrus, are given in Table 14 and show that 236 tonnes of tropical fruit pulp were imported in 1981, 86 per cent from India, and the bulk of the remainder from Malaysia, New Zealand and the EC. Despite the small size of this market it has risen considerably in four years, almost certainly as a consequence of the product imported under this category—mango pulp from India for use in the dairy industry; the Swiss are the largest consumers

Table 14

Switzerland: imports of tropical fruit pulp without sugar

	1977	1978	1979	1980	1981				
					Q	% total	V	V\$	UV
Total Q	38	146	139	230	236	100	653	332	1,407
V	79	357	304	544	653				
Total developing countries listed of which from:	...	127	138	218	221	94	604	307	1,391
India	...	34	106	198	203	86	567	289	1,424
Malaysia	...	—	—	—	18	8	36	18	1,000
Sri Lanka	...	7	—	—	—	—	—	—	—
Mexico	...	86	—	—	—	—	—	—	—
Brazil	...	—	23	20	—	—	—	—	—
Peru	...	—	9	—	—	—	—	—	—
EC	...	1	1	3	5	2	18	9	1,860
New Zealand	...	—	—	—	5	2	18	9	1,800
South Africa	...	11	—	—	—	—	—	—	—

Source: *Statistique annuelle du commerce extérieur de la Suisse*

Notes:

... not available
 — nil/negligible
 US\$ 1.00 = SF 1.9642
 Q = tonnes
 V = SF'000
 V\$ = US\$'000
 UV = US\$/tonne

of fruit yoghurt in Europe (ITC, 1982). Recently Roco, manufacturers of preserves, have produced a range of five tropical fruit juices. These are also made from imported pulp.

The unit value of the Indian product was US\$ 1,424/tonne, that from New Zealand (kiwi fruit pulp) US\$ 1,800/tonne.

Market profile

Like other countries, Switzerland has enjoyed increased prosperity, greater travel opportunities and a more varied diet. These factors and the adoption of tetra-packing for juices have contributed substantially to the increase in consumption of all types of fruit juice. With one of the highest per capita incomes in the world, Switzerland had a per capita consumption of fruit juices estimated at 21 litres in 1981, and rising (ITC, 1983). Of this, however, probably a bare 2 per cent is comprised of tropical juices. One importer estimated total sales of tropical fruit juice to be less than 1,000 tonnes, of which some 600 tonnes were believed to be passion fruit juice.

Tropical fruit juices are available in Switzerland largely in the form of mixes and blended drinks. A mango drink based on whey or lacto-serum is being retailed by Migros. There is considerable health consciousness in Switzerland and traders believe that promotion of tropical fruit juice can capitalise on this. A general interest in the future of tropical fruit juice prevails, and traders have expressed cautious interest in potential sources of supply. Passion fruit juice, already being promoted in drinks and yoghurts, was generally regarded as having the most promise.

STRUCTURE OF THE MARKET

As with the fruit juice market in general, imports of tropical fruit juices into Europe are made through agents and importers and directly by reproprocessors. The structure and characteristics of the tropical fruit juice market are however different from those of the fruit juice market in general and these differences have become more marked in the very recent past.

The mass market in Europe

In the early 1970s when the tropical fruit juice market in Europe was in its infancy, it was dominated by Passi AG, in Switzerland, who concentrated initially on passion fruit, and later diversified into other tropical fruit juices. As the market developed first into the dairy trade and more recently into multi-juice blends (pioneered by Eckes in West Germany with their Drink 10 product), other companies entered the market. There are now between 20 and 30 companies in Europe actively engaged in the tropical fruit juice trade, of which the largest is probably Eurocitrus BV in the Netherlands.

This company has successfully developed blends and bases firstly for the dairy industry, and latterly for the manufacturers of multi-juice blends. One importer estimated that together Passi and Eurocitrus have an 80 per cent share of the tropical fruit juice market, (Passi retaining a 50–60 per cent share of the passion fruit juice market); the remaining 20 per cent is equally split between other agents and direct imports by the food industry and others. Eurocitrus has the major share of the blends market, which accounts for 70–80 per cent of Western European tropical fruit juice imports and is overwhelmingly the dynamic sector within the market as a whole. The further development of this sector of the market is extremely important to the future of the tropical fruit juice trade.

Blends were developed to open up new market opportunities; they overcome a number of problems arising with straight and/or single source juices, including: standardisation; preparation to particular specifications; the limited appeal of some single juices, for example, due to high acidity; high and/or volatile prices. The companies which have developed these blends have invested heavily in research, and in plant and buildings including storage for individual juices; one company, Passi, is known also to have invested in factories and joint ventures in a number of producing countries.

With the still limited demand for the final products, it is unlikely that many more companies will find it viable to make similar investments in the near future. Consequently, it may be expected that primary imports will be handled, in the foreseeable future, by companies already so engaged; probably those companies blending as well as importing will capture a larger share of primary imports. Furthermore, manufacturers which are not also first-hand importers are likely to obtain their requirements already blended from the companies offering these products.

The market for ready retail-packed tropical fruit juices in Europe

The market for tropical fruit juices imported ready packed in retail containers is mainly that of the minor ethnic groups, with some overspill into the health food trade. Demand characteristics vary by outlet and consuming groups, but non-blended nectars or drinks, often with added sugar, are the normal requirements. The United Kingdom and French markets appear to be the largest in Europe but, in spite of this, these products are rarely encountered outside shops specialising in servicing these consumers.

Importers for this sector of the market, at least in the United Kingdom, tend to specialise in supplying ethnic markets and include tropical juices and drinks among a wide range of specialist items. They find it cheaper to import ready-packed retail goods than to reprocess pulp in Europe. The health food trade will rarely accept juice with added sugar and this rules out the vast majority of the imported ready-packed juices for this sector.

PACKAGING REQUIREMENTS

In the light of irregular supplies and variable quality, the concern of importers of tropical fruit prices for the mass market is more with price and quality than with the type or size of packing. Nonetheless they prefer frozen pulp sealed in polythene

bags inside a 45 gallon steel or plastic drum. Freezing preserves the flavour better than other preservation methods, while bulk packing cuts down the cost of opening and disposing of the hot-packed A10 cans. Many importers, particularly those blending or those supplying blenders, prefer concentrate for its ease of handling and use; this is especially so if they are supplying the dairy trade who require solids. However, in all markets there are traders who seek single strength juice as this is likely to retain its taste better than concentrate. It is estimated that about half the imports of tropical fruit juice are now frozen, the remainder hot-packed.

Some importers are advocating the new scholle bag or aseptic pack. This appears to have been very successful with citrus fruit juices but it does appear that the pack may be more successful with one raw material than with another. Although the pulp is microbiologically sterile on extended storage at ambient temperatures, detrimental quality changes can possibly occur through residual enzyme activity and oxidation. Such changes can lead to clouding and modification of flavours. This is less of a problem with the frozen product. Aseptic packs are also more expensive than frozen packs but they have the real advantage that they do not require refrigeration. With these qualifications it is probable that the use of aseptic packs will increase.

COMMODITY PREFERENCES

The following is a summary of the market requirements for selected tropical fruit juices:

Mango	Alfonso, 12–17° Brix single strength to 65° Brix concentrate, is the best, but the most expensive. For high quality products in the beverage, dairy food and baby food industries the raw material should be at least one-third Alfonso. Chata from Peru and Kesar from India are becoming more popular.
Guava	9° Brix single strength to 65° Brix concentrate. The white-grey varieties are preferred for the ethnic market, but otherwise pink varieties from South Africa are considered to be the best. Latin American guava juice, which tends to be a mixture of white and pink varieties, is acceptable, as are white guava juice from India, white-green from Taiwan and yellow-green from the Philippines. These latter varieties will however fetch a lower price than the South African varieties.
Papaya	10–17° Brix Hawaiian Solo variety juice appears to be preferred.
Passion fruit	12–15° Brix single strength to 62° Brix for concentrate. Purple <i>Passiflora edulis</i> from Africa and yellow <i>Passiflora flavicarpa</i> from elsewhere are both acceptable.
Pomegranate	12–14° Brix single strength, usually from Latin American countries.
Naranjilla	15° Brix single strength, again usually from Latin American countries, particularly Peru and Ecuador.
Soursop	10–14° Brix single strength, commonly from Taiwan also from Indonesia.

PRICES

The prices of tropical fruit juices vary according to the supplier, the time of year and, to a lesser extent, the market in question. Tropical fruit juice is mostly produced from fruit for which the supply and hence price situation can fluctuate dramatically. Passion fruit production can be expanded quickly; too rapid expansion has led to considerable waste in the past. Similarly mango, although a tree crop, grows in such abundance that much of the world's crop is left to spoil.

As the markets for these fruits and their derivatives have grown, so from time to time prices have risen such that the wrong signals are given to producers, and supplies have been increased. This has quickly led to plummeting prices and a confused market, where interested parties are reluctant to commit themselves to a future strategy. By way of illustration, c.i.f. prices of single-strength passion fruit juice rose from US\$ 1,400/tonne in January 1980 to US\$ 2,800/tonne in January 1981, and over US\$ 3,500 in mid-1981. As a consequence many growers increased passion fruit production, particularly in Brazil where the government offered encouragement. The area planted also increased rapidly world-wide, and one knowledgeable importer estimated the total area to be around 15,000 hectares in 1982. The world supply increased and as a direct result prices fell to US\$ 2,100 by February 1982, US\$ 1,300 by November to US\$ 850 by March 1983. It is probable that the volatility of this market and the cautiousness, even reluctance, which this engenders in many European buyers has contributed to their retreat from direct purchasing arrangements with suppliers and allowed the blending companies to dominate this end of the market. Several traders reported that inexperienced agents in Europe directly contributed to over-production and the falling prices of 1982 by bidding unrealistically high prices during the period of relative shortage of passion fruit juice in 1981. By 1983 several countries found themselves forced to market passion fruit juice at less than the cost of production.

A number of importers who bought at the high prices, perhaps under contract, held stocks which they could only sell at a considerable loss. They were naturally reluctant to engage in further trading, let alone any developmental or promotional activity.

The following were some tropical fruit juice prices in March 1983:

Table 15

Some tropical fruit juice prices, March 1983

	March 1983 c.&f.
	Europe (US\$/tonne)
Guava: single-strength frozen pulp:	
Indian white	700
Latin American mixed	
white and purple	750
South African pink	900-1,000
Brazil mixed	675
Mango: Indian Alfonso, hot-packed single strength	1,100-1,500
Brazilian, frozen single strength	750-900
Brazilian, frozen 55° Brix	4,200
Philippines, frozen single strength	1,300
Peruvian Chata, single strength	870
Soursop: Philippines, hot-packed single strength	1,600
Passion fruit: Brazilian, 14° Brix yellow	900
Brazilian, 40° Brix yellow	3,150
Brazilian, 62° Brix yellow	4,300
Peruvian, 50° Brix yellow	3,000
Papaya: Brazilian, 17° Brix	950-1,000

Table 16

European retail prices in early 1983 of selected tropical fruit products

Product	Brand name	Volume/ net weight	Place of manufacture (if outside Europe)	Container type	Retail price	US\$ per litre (or kg)
1 Drinks						
Tropical fruit drink	Five Alive/Coca Cola	1 litre	—	tetrapack	£0.55	0.87
Tropical fruit drink	Sainsbury's	1 litre	—	tetrapack	£0.45	0.71
Mixed fruit drink	Just Drink	1 litre	—	tetrapack	£0.49	0.77
Tropical fruit crush	Fiji/Unigate	250 ml	—	tetrapack	£0.22	1.39
Tropical fruit cocktail drink	St Ivel	1 litre	—	tetrapack	£0.54	0.85
Multi-vitamin drink	Junita	70 cl	—	bottle	£0.99	2.24
Multi 10 mixed fruit drink	Schloss Heidelberg	700 ml	—	bottle	£1.35	3.05
Mango drink	Tsin Tsin	241 ml	Taiwan	can	£0.30	1.97
Guava drink	Sumerlo	241 ml	Taiwan	can	£0.30	1.97
Mango nectar	Leisure drinks	1 litre	—	bottle	£0.99	1.57
Fruit cocktail	Stute	1 litre	—	tetrapack	£0.89	1.41
Mango drink	Vita	250 cc	Hong Kong	tetrapack	£0.22	1.39
Litchi drink	Lo Lo	250 cc	China	can	£0.15	0.95
Guava	Caraibos	100 cl	—	bottle	FF13.50	1.83
Cocktail exotique	Fruidam	1 litre	—	tetrapack	FF5.80	0.78
Tamarinde drink	Yukery	29.5 cl	Venezuela	can	FF2.50	1.15
Fruit cocktail	Migros	1 litre	—	tetrapack	SF2.40	1.17
Lychee juice	Mount Elephant	200 g	China	can	SFO.95	2.31
Passion fruit drink	Migros	250 cl	—	tetrapack	SFO.70	1.36
Guava/apple juice	Sunkist	200 ml	—	tetrapack	DM0.50	1.02
2 Yoghurts						
Passion fruit and melon	Safeway	150 g	—	tub	£0.15	1.58
Tropical fruits	Chambourcy	142 g	—	tub	£0.23	2.56
Peach and maracuja	Sudmilch	175 g	—	tub	£0.35	3.17
Peach and maracuja	Fiesta	150 g	—	bottle	£0.27	2.85
Fruits exotique	Danone	2 × 125 g	—	tub	FF4.86	2.63

Source: Selected supermarkets in the United Kingdom, France, Switzerland and West Germany

Notes: Exchange rates—May 1983: US\$ 1.00 = SF 2.0587
 FF 7.395
 DM 2.444
 £ 0.6317

Table 16 shows retail prices of some tropical fruit products collected during field work. In the drinks category it can be seen how the blended multi-fruit drinks are considerably cheaper in almost every case than the single fruit drinks. The cheapest drink recorded was found in the United Kingdom—Sainsbury's tropical fruit drink—at US\$ 0.71/litre, while the most expensive mixed drink was the Schloss Heidelberg Multi-10 mixed fruit drink, imported from West Germany, priced in the United Kingdom at US\$ 3.05/litre, followed by Junita Multi-vitamin drink at US\$ 2.24/litre. It should be noted that almost 80 per cent of retail sales of fruit juice in the United Kingdom are now in cartons.

Of the yoghurts containing tropical fruit pulp, prices varied from US 1.58/kg for Safeway's passion fruit and melon to US\$ 3.17/kg for Sudmilch peach and maracuja, imported from West Germany, into the United Kingdom.

TARIFFS AND BARRIERS TO ENTRY

The European Community (EC)

All four EC countries studied apply the EC Common Customs Tariff, shown in Table 17, and no quantitative restrictions apply to these juices. The information which follows, on the food laws and regulations, has been abstracted substantially from the International Trade Centre report, *The world market for fruit juices*, 1982.

France

The juice market is regulated by decrees issued by various ministries which include the Ministries of Agriculture, Industry and Health. There are also EC directives on juice marketing. A complete set of these regulations is included in the publication *Le statut legal des jus de fruits et de legumes, nectars et boissons aux fruits* (ISBN No. 2-903618-00-3), published by the French Juice Producers Association.

Table 17

EC Tariffs for 'tropical fruit juices'*

	% ad valorem			
	CET	GSP	ACP	Developing countries
Juice of a specific gravity > 1.33 @ 15°C			free	free
without sugar	42	14		
with sugar†	42	14		
Juice of a specific gravity < 1.33 @ 15°C			free	free
exotic juice of one fruit:				
without sugar	22	9		
with sugar	22	9		
mixed exotic juices:				
without sugar	22	18‡		
with sugar†	21	17‡		

Source: HM Customs & Excise

Notes: * juices other than citrus, pineapple, tomato, apple, pear and grape
 † juice of sp. gr. > 1.33 with added sugar and juice of sp. gr. < 1.33 with added sugar of more than 30% attract the sugar levy
 ‡ except if containing more than 25% of either grape, citrus, pineapple, pear, tomato, apricot, peach

Federal Republic of Germany

The fruit juice trade is regulated by both domestic and EC directives. Potential exporters are advised to seek information from experienced importers who can provide details of the following special food laws and regulations which apply to fruit juices:

Verordnung über Fruchtsaft, konzentrierten Fruchtsaft und getrockneten Fruchtsaft (Regulations on fruit juices, concentrated fruit juice and dried fruit juice) of 17 February 1982.

Verordnung über Fruchtnektar und Fruchtsirupe (Regulations on fruit nectar and syrups) as amended on 17 February 1982.

Leitsätze für Fruchtsäfte (A set of guiding principles for fruit juices).

Netherlands

As well as the relevant EC directives, in the Netherlands there is also a general food law, *Warenwet*, of 28 December 1935, as amended. Again it is strongly recommended that exporters check the relevant passages in the directives.

United Kingdom

In the United Kingdom there are regulations issued in 1977 under the Food and Drugs Act of 1955 on fruit juices and nectars. These aim to protect the consumer from confusion as to the differences between nectars, drinks and juices, and exporters are advised to seek information on these regulations from *A guide to the food regulations in the United Kingdom* published by the British Food Manufacturing Industries' Research Association, Randalls Road, Leatherhead, Surrey.

Switzerland

The customs duties for imports of tropical fruit juices into Switzerland are given in Table 18. Switzerland gives preferential treatment to these commodities if they originate in any of 154 developing countries or territories, provided that the appropriate certificate of origin accompanies the shipment.

There are no quantitative restrictions on imports of tropical fruit juice. Assuming a unit value for imported juice equal to the 1981 average (US\$ 1,407/tonne), the tariff rate of SF 28/100 kg of unsweetened juice is equivalent to some 10 per cent.

Table 18

Swiss tariffs for 'tropical fruit juices'*

	SF/100 kg [†]	
	GATT rate	Developing country rate
Unsweetened	28	Free
Sweetened		
(i) in glass bottles of a capacity of 2 decilitres	30	Free
(ii) other	60	Free
Tropical fruit pulp	17	Free

Source: *Bulletin International des Douanes*

Notes: * Fruit juices other than grape juice, seed-fruit juice, and raw lemon juice
† The duties are specific, i.e. levied on the weight of the product imported, not on its value
Switzerland gives preferential treatment to certain products originating in 154 developing countries. Details of these concessions are published in the *Bulletin International des Douanes*

PROSPECTS

With a few qualifications concerning the individual markets, it is fair to say that declining real disposable income and the prospects of continued recession have adversely affected prospects in the market for tropical fruit juices, which are essentially high-cost luxury items.

Fruit juice markets in general have certainly grown considerably in recent years. The reasons for this have varied to some extent with individual markets but the following causes are generally applicable to all European countries studied:

- the widespread adoption of tetrapacks;
- supermarket promotions;
- the change in consumption patterns towards products which can be perceived as healthy (e.g. fresh fruit and fruit-based products) particularly at breakfast time;
- the general increase in spending power in Europe which has occurred in the last 20 years coupled with increased travel and exposure to exotic flavours; and
- in the United Kingdom the availability of doorstep-delivered fruit juice has also been a significant factor in increasing consumption.

Tropical fruit juices however did not become popular in the first wave of increased consumption of fruit juice. Their recent emergence as a distinct product and increased demand for them was at first greeted with real enthusiasm by the trade,

but their growth latterly has not been as great as predicted. The causes of this are attributed largely to the recession, the consequent decrease in consumer spending power, and the image of tropical fruit juice as a luxury. The fact that much tropical fruit is sold with added sugar has probably also been a draw-back in these times of increased health awareness. On top of this the severe price instability of tropical fruit juices, and passion fruit juice in particular, has also led to a certain reluctance in the trade to make further investment commitments.

In West Germany at least, an added problem for those in the trade and one at variance with the trend, in certain sectors, towards pure and 'healthy' products, has been the success of nectars and drinks. These have a 50 per cent juice content (or less) and were first promoted as a cheap substitute to fruit juices. It is widely felt that many consumers are confused by the difference between juices and nectars and are most influenced by the price, rather than the content, of the product. Should this trend spread to other markets it could have severe repercussions for suppliers of tropical fruit juice.

Within this general, rather gloomy, picture however, there are some causes for optimism. Most particularly tropical multi-juice drinks are now being widely promoted, and by all accounts are selling well in supermarkets all over Europe. The hope of the manufacturers of this product is for continued expansion at the expense of other items on the beverage market, such as carbonates and comminutes (which are a particularly large item in the United Kingdom). This is believed to be an easier task than to compete on the general juice market where there is now a strong emphasis on pure juice, without sugar or other additives.

Certainly one of the problems with marketing tropical fruit juice has been that the expansion in fruit juice consumption was promoted by encouraging an interest in 'healthy' products with a strong emphasis on their lack of additives and sugar. Tropical fruit juices cannot usually be drunk undiluted or without sugar and so the marketing strategy for these products has had to be altered. 'Freshness', colour, zest and variety are now predominantly emphasised. A possible development to note is the introduction and promotion of whey drinks in Europe. These have a remarkably fresh taste and frequently have a tropical flavour, sometimes a single juice such as mango, sometimes a mix. The manufacturers of this product are confident of some success. Sales of blended multi-juice drinks are, by all accounts, increasing, certainly in the United Kingdom, and there is optimism in the trade about their continued growth. The retail-packed single fruit tropical drink is an item largely restricted to the ethnic market and is not a growth item.

It should also be noted that fruit juice consumption in France and the United Kingdom is still well below that of the West German and Netherlands markets and that the trade believes that increased promotion can raise demand in these countries. Tropical fruit juice consumption is of course only a fraction of total juice consumption in all of the European markets and given more price stability, imaginative promotion, and an end to the recession, there is no reason why growth in tropical fruit juice consumption cannot continue to rise. The market is very small in comparison to the fruit juice market in general and a large percentage increase would not significantly alter the pattern of fruit juice consumption in Europe.

European markets for canned tropical fruit

INTRODUCTION

As stated in Section 4, the nature of the European market and the quality of the data available have necessitated that the four EC markets visited (France, West Germany, the Netherlands and the United Kingdom) be reviewed together rather than as individual markets. Import statistics relating to the individual EC countries are included in Appendix I, Tables G, H, I and J.

As already explained in Section 1, processed tropical fruit imported into the EC are included in the statistics in residual categories entitled 'other' and are not singled out individually. Imports of both canned fruit and juices are listed under the headings of orange, grapefruit, other citrus, pineapple, tomato, apple, pear, grape and 'other'. This last includes tropical fruit and is the one analysed here. However, it also includes other non-tropical fruits too; for example kiwi fruit, persimmons, plums, cherries, berries, etc. Derivation of product identity is only possible under these circumstances by scrutiny of the supplying countries listed, and the relative values of their products, as well as by discussions with the trade.

THE EUROPEAN COMMUNITY (EC) MARKET

Imports

In the EC market, the residual categories of processed tropical fruit are broken down according to whether the contents of the can are one fruit or a mixture of fruit, and according to whether or not sugar or alcohol are included. The statistics are additionally broken down into can size categories, these being: greater than 4.5 kg, between 4.5 and 1 kg, or less than 1 kg. For the purposes of this report the figures for all categories except those with added alcohol have been added together to give a total import figure. This information is contained in Appendix I, Tables G, H, I and J, and Table 20. Although 196,299 tonnes of canned 'other' fruit were imported in 1981 this is not a measure of the size of the market for canned tropical fruit, since these residual categories are predominantly made up of non-tropical fruits such as kiwis, cherries, plums, strawberries, raspberries, prunes, melons, loganberries, figs, etc., from sources such as Canada, South Africa, Eastern Europe and Israel. The total also includes considerable quantities of mixed fruits mostly of temperate origins. Imports of 'mixtures' into the four EC markets in 1981 totalled 92,413 tonnes, i.e. 47 per cent of imports of 'other' fruit; tropical fruit salad was probably less than 5 per cent of the market, otherwise dominated by the EC suppliers, Australia and South Africa, which supply temperate fruit salads.

In view of the inadequacy of the available statistics for this market, a total for tropical or developing country suppliers has been prepared and is presented in Table 20. This gives a better idea of the size of the tropicals market, but unfortunately there is a problem here too. South Africa is known to be the major supplier of papaya, guava and mangoes in cans, certainly to the United Kingdom and probably also to the rest of Europe.

European imports from South Africa are not included in this sub-total; however the available import figures also include South Africa's exports of other non-tropical canned fruit, which are probably at least 50 per cent of their export of canned 'other' fruit. In 1981 South African exports to the United Kingdom of 'other' canned fruit, not including mixtures, totalled some 3,000 tonnes. Unfortunately South Africa does not publish its export figures so there is no means of deriving a breakdown of exports from that source.

21,624 tonnes of canned fruit were listed as originating in developing countries in 1981. It is believed however that recorded supplies from Honduras and Panama are almost entirely banana purée, and as this is not a commodity covered in this report, imports from these countries are excluded from consideration. The developing country totals minus imports from Honduras and Panama are shown in Table 19.

Table 19

**EC: imports of canned fruit
originating in developing countries
(minus Honduras and Panama)**

Year	Tonnes
1977	14,331
1978	19,241
1979	15,889
1980	17,113
1981	17,946

The other main suppliers to this market in 1981 were Taiwan (4,356 tonnes) exporting a wide variety of items including lychees, kumquats, mangoes, longans; China (4,022 tonnes) exporting mostly lychees but also mangoes; the Philippines (3,302 tonnes) supplying mostly tropical fruit salad. India is also a significant supplier of canned mangoes to this market.

Table 20

France, Federal Republic of Germany, the Netherlands and the United Kingdom: imports of 'other' canned fruit without alcohol

	1978	1980	1981			
			Q	% total	V	UV
Total	209,410	194,439	196,299	100	153,107	790
Total developing countries and territories listed in national statistics	21,489	20,813	21,624	11	20,146	992
of which from:						
China	6,801	3,939	4,022	2	3,687	917
Taiwan	1,774	4,783	4,356	2	4,804	1,102
India	1,527	1,583	2,305	1	2,364	1,026
Philippines	1,280	2,524	3,302	2	3,307	1,022
Panama	440	2,098	2,684	1	1,995	743
Honduras	1,808	1,602	994	—	797	802
Brazil	3	532	868	—	999	1,512
Jamaica	108	76	126	—	444	3,524
Argentina	1,253	508	175	—	187	1,069
Ivory Coast	2,178	982	1,094	1	826	755
Hong Kong	78	147	147	—	234	1,592
Haiti	—	37	128	—	134	1,047
Kenya	—	112	63	—	120	1,905
Malaysia	34	32	67	—	86	1,308
Costa Rica	—	—	84	—	66	786
Colombia	114,494	97,252	99,126	52	69,305	713

Source: Official trade statistics of the respective countries

Notes: Q = tonnes
V = US\$'000
UV = US\$/tonne

The average unit values for imports into these four countries, converted into US\$, vary considerably; imports from Central America are the lowest valued while those from Jamaica, Kenya and Hong Kong are the highest.

INDIVIDUAL COUNTRY MARKETS

France

Imports of 'other' canned fruit without alcohol into France, 1971–81, are shown in Appendix I, Table G. In 1981 a total of 22,650 tonnes was imported with 5,957 (or 26 per cent) tonnes originating in developing countries and territories. The biggest supplier was Taiwan (1,443 tonnes) followed by the Philippines (1,223 tonnes), the Ivory Coast (860 tonnes) and China (787 tonnes). Between them these four countries and territories supplied 72 per cent of developing countries' and territories' total. The Ivory Coast may be supplying tropical fruit salad or items with pineapple included, although no product from this country was discovered during field research. Supplies from the other three countries and territories are largely lychees, although mangoes are a significant part of the Philippines' supplies and Taiwan is exporting a range of other exotics including mangoes.

One importer estimated that 4,000 cases of mangoes in syrup and 4,000 cases of guavas in syrup were also supplied by South Africa.

The average unit value for imports in this category was US\$ 803/tonne. Imports from Taiwan were of the highest value, at US\$ 1,186/tonne, while from the Philippines were of the lowest value at US\$ 617/tonne.

Federal Republic of Germany

Imports

Imports of 'other' canned fruit into West Germany are shown in Appendix I, Table H. The table is laid out as for the other market countries and shows total imports, including mixtures and non-tropical fruit as well as a sub-total showing imports from developing countries. This latter figure is a closer approximation of the size of the canned tropical fruit market, although it is an underestimate in that tropical fruit from sources such as South Africa and Australia are not included. There is another problem with the interpretation of the statistics. The biggest supplier in 1981 was Panama, while Honduras had also been consistently a major supplier. These countries are not known to be supplying canned tropical fruit in the sense understood in this report and it is believed that these figures actually refer to these countries' shipments of canned banana purée, sent to Europe for the baby food market. Unfortunately the export statistics for Panama and Honduras are not available after 1977 and 1980 respectively, but those that are available show that West Germany and the Netherlands are major destinations for these countries' exports of banana purée. If the exports of Panama and Honduras are deducted from the totals shown in Appendix I, Table H, not only do developing country imports shrink significantly, but the rate of the increase indicated for imports from all developing countries is also considerably reduced. Imports from developing countries minus Panama and Honduras are shown in Table 21.

Table 21

**Federal Republic of Germany:
imports of canned fruit originating
in developing countries (minus
Honduras and Panama)**

Year	Tonnes
1977	2,486
1978	2,417
1979	2,472
1980	3,781
1981	3,257

Excluding Panama and Honduras, the largest supplier is Taiwan, whose supplies fluctuated considerably over the period under study. Although exporting only 1,323 tonnes in 1981, its average supplies, between 1979–81, were 48 per cent of the developing country and territory total. The principal products exported included canned mangoes, lychees and kumquats. China was the next largest supplier, exporting 784 tonnes in 1981, mostly of lychees. The next largest suppliers were Brazil (402 tonnes), whose total probably includes banana purée, and India (385 tonnes), largely of canned mangoes.

Average unit values of imports from the major suppliers range from US\$ 769/tonne and US\$ 831/tonne for Panama and Honduras respectively (these low values giving credence to the view that the figures refer to supplies of banana purée) through US\$ 1,034/tonne for Taiwan, and US\$ 1,117 for India, to US\$ 1,704/tonne for the high-valued Chinese lychees.

Market profile

Although demand for canned fruit of all kinds is still increasing in West Germany, trade representatives are cautious about market prospects. The recession, the elasticity of demand for canned fruit and the very good supply, variety and cheapness of fresh fruit have all taken their toll of trade confidence.

Within the overall market however canned tropical fruit are viewed somewhat differently. They are new and novel, and aimed at the luxury end of the market which is less concerned with the high prices of the items in question. Nonetheless the market is tiny.

One interesting development is the growth in demand for canned kiwi fruit which is not strictly a tropical fruit. Exports of canned kiwis from New Zealand have grown from 876 tonnes in 1981 to 2,378 tonnes in 1983. Sales of fresh kiwis have exhibited a similar growth in demand. Some retailers hope that other tropical fruit can be sold on the back of this success. However, the promotion by New Zealand of this item has undoubtedly been a major element in its success and it is unlikely that any other tropical fruit supplier could spend quite the amount of money on promotion as has New Zealand.

Currently the canning and labelling of tropical fruit is done in the producer countries, and the final pack is sometimes poor. Presentation needs improvement before any 'take-off' is likely.

There was a belief in the trade that West German consumers were conservative and that tropical fruit were not likely to be to their taste. On the other hand, traders in every country believe their customers to be conservative and the success of kiwi in West Germany shows how demand can be stimulated. Imports of canned tropical fruit show an upward trend and there is no reason why this should not continue even if on a limited scale. Lychees, through their exposure in Chinese restaurants, are likely to continue to be the most popular item, followed by mangoes, guavas and papaya.

Examples of prices for cartons of canned tropical fruit in August 1983 are given below in Table 22.

Table 22

**Federal Republic of Germany: prices for
canned tropical fruit (August 1983)**

Fruit	US\$ (24 × 0.5 kg cans) per carton
Papaya	9.60 f.o.b. Thailand
Guava (from South Africa)	6.45 c.&f. Hamburg
Mango	7.70 f.o.b. Taiwan
Lychee	11.00 f.o.b. Taiwan
Kiwi (from New Zealand)	23.00 c.&f. Hamburg

The Netherlands

Imports

Imports of 'other' canned fruit into the Netherlands in 1981 totalled 26,601 tonnes, including mixtures which accounted for 12,847 tonnes or 48 per cent of the total (see Appendix I, Table I). As with the other countries studied, this figure is not appropriate as a measure of the size of the canned tropical fruit market.

The total for developing country supplies (4,827 tonnes in 1981) is more useful although, as explained above, it underestimates the size of the market because of the omission of some canned tropical fruit from South Africa and Australia. As with West Germany there are also imports from Honduras and Panama, which are assumed to be banana purée and not canned tropical fruit in the sense defined here. Imports from these two countries are however in this case relatively small.

There is an additional problem with the Netherlands statistics, in that one of the major relevant categories, 'other fruit with sugar in cans of less than 1 kg' specifically includes imports of citrus, prunes, raspberries, apples and quinces. 2,771 tonnes of canned fruit were imported in this category in 1981, i.e. 10 per cent of the total of 'other' fruit imports. However 1,295 tonnes, or 47 per cent of this total, originated in the major canned tropical-fruit-producing countries and it is assumed that these imports are mostly the items with which this report is concerned i.e. mango, lychee, papaya, guava, etc.

The largest developing country supplier of canned tropical fruit to the Netherlands market was China which supplied 2,245 tonnes in 1981, that is 47 per cent of the total developing country supplies. Although its supplies have been more or less stable, this is the lowest share of the market China has had in the period under study, its highest share being 79 per cent in 1977, and the average over the five years being 65 per cent. Chinese supplies are believed to be almost entirely lychees.

The next largest supplier was Taiwan with 892 tonnes. These are mostly canned lychees and canned mangoes but also other fruit; the upward trend in Taiwan's supplies (plus 240 per cent since 1977) shows the increase in demand for this fruit. However, there is an upward trend for other fruit also; the third supplier in 1981, India, supplied 819 tonnes, mostly canned mangoes. This is a rise of 1,122 per cent since 1978. The Philippines is the next supplier (181 tonnes of tropical fruit salad and mangoes in 1981).

The average unit values of imports in 1981 for the main suppliers ranged from US\$ 250/tonne for China, through US\$ 1,016/tonne for India and US\$ 1,067/tonne for Taiwan, to US\$ 1,580/tonne for the Philippines.

Market profile

Demand for canned tropical fruit in the Netherlands is centred largely around the luxury market because of the expense of the items in question. There is also however a limited demand from the population of 150,000 in the Surinamese and Moluccan communities.

Lychees dominate the demand for canned tropical fruit, followed by mango, although other minor products are also in demand e.g. arbutus, longan and loquat from China; kiwi from New Zealand; papaya from Taiwan and Thailand; guava from South Africa; tropical fruit salad from the Philippines. Tropical fruit salad is not popular in the Netherlands, owing apparently to its content of pawpaw.

This market is controlled by three to four regular importers, who are notably price-conscious. This gives Taiwan, which usually quotes the cheapest prices, some

advantage. However lychees from China are considered superior in quality both by private consumers and Chinese restaurants, and are preferred.

The importers take a 5 per cent commission on the quoted c.i.f. price: they prefer to buy c.i.f. although Taiwan supplies on an f.o.b. basis and the importers are prepared to accept this. Mid-1983 prices of some items are given below in Table 23.

Table 23

Netherlands: canned tropical fruit, mid-1983 prices

Fruit	US\$/carton (24 × 567 g)
Lychee f.o.b. Taiwan	12.80
Lychee c.i.f. China	17.80 (freight is some \$1.50 of the difference)
Mango f.o.b. Taiwan	8.70
Loquat c.i.f. China	12.70

The average unit value of supplies from Taiwan is higher than that of supplies from China (see Appendix I, Table I). The reason for this is not clear as the prices obtained from the trade, as indicated above, are uniformly lower. Chinese produce has to be transhipped to Hong Kong and containerised there for on-shipment which of course adds to the cost, but this is included in the c.i.f. price quoted.

There are two schools of thought in the trade as to the potential of the market. Some traders believe that increased exposure to fresh tropical fruit will help expand demand for canned tropical fruit even as total demand for canned fruit falls. Others take the view that the recession is restricting the demand and without promotion, which is not at present possible, there will be no growth. It was also commonly reported by traders that irregular supply and inconsistent quality had been a problem with some suppliers and that growth prospects were consequently hampered.

United Kingdom

Imports

Imports of 'other' canned fruit without alcohol into the United Kingdom, 1977–81, are shown in Appendix I, Table J. After rising at a significant rate between 1977 and 1979, imports settled back, and were 79,660 tonnes in 1981. As already explained however, this figure cannot be taken as representing the market for canned tropical fruit.

This figure includes United Kingdom imports of mixed canned fruit which were 38,512 tonnes in 1981. Of this, 16,300 tonnes originated in South Africa, 14,900 in Italy and 2,500 tonnes were supplied by Australia. The South African fruits included fruit salad but were mostly fruits of temperate type. Only some 1,460 tonnes (or 4 per cent) of mixtures originated in developing countries, almost all (1,368 tonnes) being tropical fruit cocktail with sugar in retail cans from the Philippines. This is almost certainly Del Monte's tropical fruit cocktail which is manufactured in that country. Only 97 tonnes of mixtures originate in other developing countries, the countries concerned being Hong Kong, India and Peru.

The total imports of canned tropical fruit, including mixtures, from all developing countries was 4,824 tonnes in 1981; this figure is a better estimate of the size of the canned tropical fruit market although it underestimates the total due to the omission of imports from South Africa.

The developing country figure has fluctuated considerably during the period under study, perhaps because of variations in stocking. In 1981 the largest developing

country supplier was the Philippines with 1,786 tonnes, (or 37 per cent) of developing countries supplies. The Philippines has increased its exports continually since 1977 and now supplies more than twice the volume supplied in earlier years. As described above, supplies from the Philippines were 77 per cent mixtures and presumed to be tropical fruit salad, which has a pineapple base with cherries, papaya, guava purée, banana slices and passion fruit juice. The next largest suppliers were India (1,084 tonnes in 1981) mostly mangoes in syrup, and Taiwan (698 tonnes in 1981) which included lychees, mangoes, kumquats, longans, etc. The other major, although smaller, suppliers in 1981 were Brazil, China, Argentina and Jamaica.

The average c.i.f. unit values of imports from developing countries in 1981 was US\$ 1,236/tonne, ranging from US\$ 990/tonne from India through US\$ 1,171/tonne for the Philippines, and US\$ 1,400/tonne for China, to US\$ 3,524/tonne for Jamaica. Average unit values for imports of mixtures/tropical fruit salad was US\$ 835/tonne and for single canned fruit US\$ 794/tonne.

Market profile

Although the total import statistics on 'other' canned fruit are unsuitable as a basis for estimating the size and make-up of the canned tropical fruit market, the derived figures and comment from the trade suggest that the market absorbs around 6,000–7,000 tonnes per annum. Of this perhaps 25–30 per cent is made up of mixtures, i.e. tropical fruit salad or tropical fruit cocktail, predominantly from the Philippines. A similar proportion is accounted for by imports of lychee from Taiwan, China and Hong Kong. Sales of canned mango from India, South Africa and Taiwan, canned pink guava from South Africa and canned pawpaw cubes from South Africa and Hong Kong are smaller but growing, and kiwi has recently emerged as a possible growth product in the canned market.

There is also a wide variety of lesser-known tropical fruit which are imported canned in smaller quantities. These include jackfruit, rambutan, and mixed rambutan and pineapple from Malaysia; longan from Thailand; and tamarind from Jamaica and Singapore. Small quantities of white peach, a tropical variety, have recently been imported from Korea.

While South Africa has a large share of the market, particularly for canned guava, preferences of some consumers ensure markets for other suppliers.

Many importers stated that quality was the main factor in choosing a supplier and that price was secondary. Most importers have had problems with the quality of shipments from time to time and are very aware of the importance of high quality. The South African product enjoys a solid reputation for its quality.

There are about one dozen firms importing canned tropical fruit; most of them buy the product direct, usually on c. & f. or c.i.f. terms but those handling quantities of less than a container buy through a broker. Typical import and wholesale prices of canned tropical fruit in the United Kingdom in September 1983 are shown in Table 24.

A major factor in the future marketing of canned tropical fruit will be the extent to which prices can be brought into line with those for the major canned fruit products, i.e. pineapple, mandarin, peach, and pear. Table 25 shows retail prices in September 1983 for a range of the common fruit and canned tropical fruit.

The average value of the common canned fruit, not including fruit cocktail, is 83 p/kg, while for the canned tropical fruit recorded the average value is 150 p/kg. This basket of canned tropical fruit is therefore 69 per cent more expensive than the more common canned fruit. Lotus canned mango from Taiwan are the best value, followed by S & B guava halves from South Africa, then Wardour papaya cubes

Table 24

United Kingdom import and wholesale prices of canned tropical fruit, September 1983

Fruit	Brand	Origin	Pack size	£/doz	£/kg
Wholesale prices					
Lychee	Golden Pagoda	Hong Kong	24 × 11 oz	7.90	2.11
		Taiwan	24 × 20 oz	5.50	0.81
	Narcissus	China	24 × 20 oz	8.00	1.18
Paw paw					
Rambutan in pineapple	Jefi	Malaysia	24 × 20 oz	10.75	1.58
Pink guava halves in syrup	Gants	South Africa	24 × 15 oz	4.65	0.91
Tamarind in syrup (wet pack)	—	Singapore	50 × 1 lb	3.95	0.73
Longan		Taiwan	24 × 20 oz	8.50	1.25
C.I.F. prices					
Lychee	Epicure	Taiwan	24 × 11	2.71	0.72
	Epicure	Taiwan	12 × 20	4.44	0.65
White peach	Epicure	Korea	24 × 15	3.94	0.77
Guava	Epicure	South Africa	12 × 15 oz	5.92	1.16

Source: Trade interviews

Table 25

United Kingdom retail prices of canned tropical fruit, September 1983

Product	Brand name	Net weight	Retail price (p)	p/kg
Sliced pineapple in juice	Del Monte	15.25 oz	38	87.9
Pineapple in syrup	Dole	15.5 oz	35	79.7
Mandarin in syrup	Safeway	11 oz	27	86.6
Pear halves	Del Monte	14.8 oz	34	81.0
Sliced peaches	Del Monte	14.8 oz	34	81.0
Fruit cocktail	Del Monte	14.8 oz	41	97.7
Mango in syrup	Lotus	15 oz	43	101.1
Mango in syrup	5 Circles	15 oz	45	105.8
Mango pulp	Maharajah	16.6 oz	58	123.3
Lychee in syrup	Wardour	11 oz	48	153.9
Lychee in syrup	5 Circles	20 oz	74	130.5
Lychee in syrup	Lotus	11 oz	45	144.3
Guava halves in syrup	S & B	14.5 oz	49	117.6
Tropical fruit cocktail	Del Monte	16 oz	41	90.4
Papaya cubes in syrup	Wardour	15 oz	48	112.9
Seedless paw paw in syrup	Epicure	14.5 oz	63	151.2
Jackfruit in syrup	Jefi	16 oz	77	169.8
Rambutan in syrup	Jefi	20 oz	1.20	211.2
Sliced mango	Newton	20 oz	88	154.8
Guava halves	Hamlet	14.5 oz	72	174.8
Mango slices	Wardour	15 oz	69	161.9

Source: Selected supermarkets

from Taiwan, and finally all brands of lychees. The rare jackfruit in syrup and rambutan in syrup, both imported by Jeti from Malaysia, are two of the most expensive.

Two recent phenomena are worth noting. The first is the increased stocking of canned tropical fruit in supermarkets; lychees are now commonly found but the Del Monte tropical fruit cocktail, canned mangoes and canned guavas are not uncommon in supermarkets in London and the South-East where sales of exotic and tropical fruit have always been greatest. Sales of these items are currently reported to be small but encouraging. The second phenomenon is a general shift in taste towards fruit canned in their own juice and away from fruit canned in syrup. This has not affected the canned tropical fruit sector noticeably yet, perhaps because of the large proportion of sales going to the minor ethnic groups (who like sweet products).

Switzerland

Imports

Swiss import figures for canned fruit are published in a different form from those of the EC countries so far discussed. Pulp, pineapples, 'stone fruit', apricots, mixtures, and fruit in shell are categorized separately and all other fruits are taken together. In 1981 this last category, 9,926 tonnes, accounted for 48 per cent of all imported canned fruit. Clearly these are not all tropical fruit.

In fact imports of canned fruit from developing country origins in 1981 totalled only 569 tonnes, a mere 6 per cent of the total imports in this category. This is the lowest developing country total in four years. Total imports and those items originating in developing countries are shown in Table 26. As for the EC countries, South Africa was a major supplier, accounting for 57 per cent of the total in 1981. Some of the items originating in South Africa will have been canned tropical fruit, including mango, guava and papaya but it is not possible to estimate the quantity involved from the available statistics.

Table 26

Switzerland: imports of canned fruit other than pineapple

	1977	1978	1979	1980	1981				
					Q	% total	V	V\$	UV
Total Q	10,157	10,734	10,399	11,404	9,926	100	20,416	10,394	1,047
V	23,753	22,323	22,603	26,827	20,416				
Total developing countries and territories listed									
of which from:		656	1,036	577	569				
India	...	5	26	15	4	—	16	8	2,000
Sri Lanka	...	10	—	17	13	—	28	14	1,077
Thailand	...	—	—	7	5	—	18	9	1,800
Singapore	...	3	—	—	1	—	3	2	2,000
China	...	46	102	158	155	2	297	151	974
Hong Kong	...	8	17	6	12	—	54	27	2,250
Taiwan	...	239	372	298	273	3	623	317	1,161
Honduras	...	19	63	74	106	1	200	102	962
Egypt	...	—	—	—	—	—	—	—	—
Madagascar	...	—	5	—	—	—	—	—	—
Iran	...	49	144	2	—	—	—	—	—
Costa Rica	...	8	43	—	—	—	—	—	—
Argentina	...	255	230	—	—	—	—	—	—
Peru	...	14	34	—	—	—	—	—	—
EC	...	1,990	2,492	2,820	1,862	19	6,891	3,508	1,884
USA	...	2,779	2,697	998	373	4	1,514	771	2,067
South Africa	...	3,573	5,392	5,458	5,625	57	7,895	4,019	714

Source: *Statistique annuelle du commerce extérieur de la Suisse*

Notes: — nil/negligible;
 US\$ 1.00 = SF 1.9642
 Q = tonnes
 V = SF'000
 V\$ = US\$'000
 UV = US\$/tonne
 ... not available

Taiwan was otherwise the largest supplier listed. This territory shipped 273 tonnes of its range of items in 1981. The only other significant suppliers were China (155 tonnes in 1981) predominantly lychee, and Honduras (106 tonnes in 1981) probably, as already explained, banana purée. Imports from both Honduras and China had been rising quite distinctly between 1978 and 1981, while those from Taiwan had been more or less static. Tiny amounts of canned fruit arrived from India, Sri Lanka, Thailand and Hong Kong in 1981 and previous years.

Market profile

The market for canned tropical fruit in Switzerland is small but the trade is quite optimistic about expansion.

Several types of tropical and exotic canned fruit are available despite the fact that the market is small and high priced; this demand emanates from indigenous Swiss as the non-indigenous population is only a few thousand.

One importer estimated the market for canned mango at about 125 tonnes per annum, another at double this. The lychee market is generally believed to be larger than that for mango and was estimated at around 350–400 tonnes. This latter fruit has now emerged from the Chinese restaurant trade, which is anyway smaller than in some other European countries, and is to be found in the supermarkets.

As the statistics show, the largest supplier is Taiwan whose products are highly regarded. There seems little doubt that Taiwan has achieved its share of this market through good business practice and by supplying good value, high quality products. Fruits are canned and labelled in Taiwan, and in the case of the small traders, bought at the rate of one container, usually in mixed lots every six months or so. Migros and the Co-op buy direct and are the largest buyers.

In addition to the Taiwanese trade some importers were buying small lots of loquat from China, lychee (Amoy) from Hong Kong, lychee and mango from Thailand, longan from China, rambutan and pineapple from Thailand, mango from India, tropical fruit salad from Brazil and mango from Mexico. Interestingly, one trader believed that the large range of varieties, can sizes and origins of Indian mangoes made the marketing of 'Indian' products *per se* difficult as different brands were almost different products. Another trader was unhappy even with the Alfonso mango, believing it to be unsuitable for canning.

Most canned tropical fruit imported into Switzerland arrive by sea at Marseilles and are trucked north. This port is apparently cheaper to use than the northern European ports of Hamburg, Antwerp and Rotterdam, and the overland route is shorter and also cheaper. Some of the small companies buy from agents in West Germany.

The general feeling on the market was one of relative optimism. The two major supermarkets were handling a range, albeit a limited one, of tropical items; Libby's were apparently beginning to pack mangoes; mango pulp, as an ingredient in yoghurt and whey drink, was in increasing demand; and two of the importers visited were designing their own labels for canned mangoes, one even preparing an advertising campaign. There was still an interest in other suppliers, although potential sources investigated had tended to be expensive relative to existing suppliers, particularly Taiwan.

F.o.b. prices for Taiwanese products in March 1983 are shown in Table 27.

Table 27

**Switzerland: prices for
Taiwanese canned tropical fruit**

Fruit	US\$
Mango slices	9.50/case (24 × 15 oz)
Lychee	13.80/case (24 × 20 oz)

Most cans of tropical fruit imported into Switzerland are packed and labelled in the producing country. It should be noted that packs must carry the following information in at least one of Switzerland's national languages (i.e. French, German or Italian): the name of the product, the name of the producer and/or country or origin, net weight and ingredients.

Table 28 shows retail prices of some tropical canned fruit in Switzerland. Only mango slices, tropical fruit salad and rambutan in syrup can be compared directly with the prices of canned tropical fruit found in the United Kingdom (see Table 24) and these are considerably more expensive than the equivalent United Kingdom product. The other fruit recorded also appears to be more expensive than a basket of United Kingdom canned tropical fruit, as represented in Table 24.

Table 28

Switzerland: retail prices of canned tropical fruit, February 1983

Product	Brand name	Net weight	Country of origin (if outside Europe)	Container type	Retail price	US\$/kg	£/kg
Mango slices	Majestic	425 g	Taiwan	can	SF2.35	2.69	1.70
Rambutan in syrup	Double axes	565 g	Thailand	can	SF4.95	4.26	2.69
Kumquat	Ferland	565 g	Taiwan	can	SF5.85	5.03	3.18
Cocktail de fruits tropicaux	Flower	565 g	Thailand	can	SF2.95	2.54	1.60
Longan	Yellow sun	565 g	Taiwan	can	SF4.85	4.17	2.63

TARIFFS AND BARRIERS TO ENTRY IN EUROPEAN MARKETS

The EC tariffs are shown in Table 29. A concessional rate applies to the African, Caribbean and Pacific (ACP) countries, the signatories to the Lomé Convention. These countries have free access to the Community which clearly gives them a significant tariff advantage over non-signatory countries and territories; nevertheless, many of the latter are currently among the main exporters of canned tropical fruits to the EC, e.g. South Africa, Taiwan, China, Thailand, India and the Philippines.

Table 29

EC tariffs for 'other' canned fruit not containing added spirit

	CET	ACP
Containing added sugar:*		
A. in immediate packings of a net capacity >1 kg		
Single fruits	21	Free
Mixtures		
(a) Mixtures in which no single fruit exceeds 50% of total weight of fruits	20.5	Free
(b) Other	21	Free
B. in immediate packings of a net capacity of <1 kg		
Single fruits	24	Free
Mixtures		
(a) Mixtures in which no single fruit exceeds 50% of total weight of fruits	15	Free
(b) Other	23	Free
Not containing added sugar	23	Free

Source: HM Customs & Excise

Note: * Imports with added sugar face an additional levy on the sugar content which corresponds to the duty payable on imported sugar. The applicable rate of the additional duty is fixed at a standard rate of 2 per cent of the customs value of the goods

The tariff for Switzerland is shown in Table 30; this is a specific duty, that is, it is levied on the weight of the product imported, not on its value. At SF 30/100 kg of canned fruit, with an assumed unit value equal to the 1981 developing country average (US\$ 1,109/tonne) this works out at some 13.7 per cent.

Switzerland gives preferential treatment to imports of these items if they originate in any of 154 developing countries or territories, provided that the appropriate certificate of origin accompanies each shipment.

Table 30

Swiss tariffs for 'other' canned fruit* not containing added spirit

	GATT rate† SF/100 kg gross	Developing country rate
'Other' fruits	30	Free

Source: *Bulletin International des Douanes*

Notes: * Canned fruit other than pineapples, stone fruit, apricots, mixtures and fruit in shell
† The duties are specific, i.e. levied on the weight of the product imported, not its value

PROSPECTS IN EUROPEAN MARKETS

The canned fruit market in Western Europe is declining, partly because of the increasing availability and falling real prices of fresh fruit of all kinds. Within this general picture the more specialised market for canned tropical fruit may be more stable, on account of the relative price inelasticity of the demand from the minor ethnic communities, and the trend towards variety in the more prosperous sections of the market.

Nonetheless, the canned tropical fruit market is tiny with no obvious prospects for substantial growth. The minor ethnic communities are no longer expanding rapidly, and tastes inevitably change with time and exposure to traditional fare of the countries in which they now live. Furthermore, the recession has led to a decline in demand for a number of products even at the luxury end of the market.

Some 18,000 tonnes of canned tropical fruit (not including those originating in Honduras and Panama, which appear to be banana purée) were imported in 1981 from developing countries into the five European countries studied. The total market is actually somewhat larger than this when South African products are included.

Imports from developing countries during the period 1977–81, excluding supplies from Panama and Honduras, averaged 16,904 tonnes and if an exceptional year in 1978 is discounted, showed a gradually rising trend. This however masks something of a decline in the United Kingdom market, and a stable situation in the market in France.

It is unfortunate that the tropical fruit considered do not lend themselves readily to canning. They tend to be both too sweet and too bland for the mass European taste. Furthermore the price, as represented by the United Kingdom retail prices shown in Table 24, are not competitive with the prices of canned temperate fruit. In fact, on average, they are more than 50 per cent more expensive.

There are some exceptions to the general mood of caution, and even pessimism, in the trade, notably the success of the lychee in all markets and the rapid growth of canned kiwi in West Germany. These have specific causes however: for example,

the use by the Chinese restaurant trade of lychees, and the considerable promotion by New Zealand of kiwi. It is doubtful whether the success of either of these two fruits is much of a pointer to the future for any of the other tropical fruit considered.

It should be noted that the tariff rate in both the EC and Switzerland is significant. Consequently the free entry to the EC for ACP countries and to Switzerland for a range of developing countries is a considerable benefit to the countries concerned. In the EC, the only countries recorded which have exploited this advantage to any degree are the Ivory Coast, Kenya and Jamaica. The last two however exported fewer than 150 tonnes each in 1981. In Switzerland, by definition, almost all canned tropical fruit, except that from South Africa, originated in developing countries and hence gains free entry.

It has to be concluded that the opportunities in this sector of the processed tropical fruit market are limited. The market is small, more or less stable and with no obvious likelihood of expansion. It is also dominated by a few countries who are supplying cheaply, regularly and reliably and who will be very hard to displace.

The United States market for canned and juiced tropical fruit

INTRODUCTION

There is considerably more statistical information available for the United States market for processed tropical fruit than there is for the markets in Europe. In 1981 there were 13 listed categories of canned and juiced tropical fruit in the published import tables, although only 11 of these have been published long enough to produce a 5-year series. In addition there are categories for different tropical jams and jellies as well as a variety of tropical fruits in brine. There is also a residual fruit juice category which includes tropical fruit juice.

This report concentrates on the tropical pulps and juices and on the canned items. The tables which follow list the main tropical fruit imported, that is, mango, guava, papaya, lychee, etc.—separately, both canned and as juice, and also include residual categories. One of these residual categories is listed as including cashew apple, mamey, etc., the others as fruit or fruit juices/pulps Not Specifically Provided For (NSPF).

PULPS, PASTES AND JUICES

Imports

Tables 31 and 32 summarise the most recent United States figures for the import of tropical fruit pulps and pastes. Table 31 aggregates the 6 categories under which tropical pulps are imported into the United States and covers a 5-year period up to 1981. Imports in 1981 were 4,410 tonnes of pulp, a fall of 29 per cent on 1977 imports. There has reportedly however been a trend towards increased concentration of imported pulps and juices; the increase in unit value of the commodities in question (61% over the 5-year period) is substantial and despite the considerable inflation over this period, would appear to support this contention. The average unit value of all imported tropical pulps in 1981 was US\$ 779/tonne.

By far the largest tropical fruit pulp item imported is guava, but the underlying trend appears to be downward. In 1981 imports were 2,598 tonnes, which is a fall of 39 per cent on the 1977 total. By all accounts the market is growing and this apparent decline may thus be accounted for by the trend towards concentration of the product. Alternatively increased supplies from Hawaii, which are not recorded as imports, may have continued. Imports of guava pulp in 1981 were almost 3 times those of mango pulp (899 tonnes in 1981) which were themselves 136 per cent more than the 1977 total.

Table 31

United States: imports of selected tropical fruit pastes and pulps, 1977-81

	1977			1978	1979	1980	1981		
	Q	V	UV	Q	Q	Q	Q	V	UV
Total	6,217	3,014	485	6,204	5,633	5,682	4,410	3,436	779
of which:									
Fruit paste and pulp cashew apple, mamey, colorado, etc.	154	103	669	172	207	138	230	287	1,248
Guava paste and pulp	4,234	1,869	441	4,055	3,302	4,223	2,589	1,598	615
Mango paste and pulp	402	316	786	611	457	595	899	908	1,010
Tamarind paste and pulp	176	107	608	164	755	158	213	219	1,028
Papaya paste and pulp	641	294	459	374	404	289	210	135	643
Fruit paste and pulp NSPF	610	325	533	828	508	279	260	289	1,112

Source: United States Imports for Consumption and General Imports, United States Department of Commerce

Notes: NSPF—Not Specifically Provided For
Q = tonnes
V = \$'000
UV = \$/tonne

Table 32

United States: imports by source of selected tropical fruit pastes and pulps, 1981

	(tonnes)							
	Tamarind paste and pulp	Fruit pastes and pulps including cashew apple mamey, colorado, etc.	Guava paste and pulp	Mango paste and pulp	Papaya paste and pulp	Fruit paste and pulp NSPF	Total	% 1981
Total	213	230	2,589	899	210	260	4,410	100
of which from:								
Mexico	—	1	320*	116*	30	112	579	13
Costa Rica	—	2	11	75	126	19	233	5
Dominican Republic	129	218	1,118	46	55	5	1,571	36
Ecuador	—	4	—	—	—	—	4	—
Haiti	—	—	8	—	—	—	8	—
Taiwan	—	—	60	—	—	—	60	1
Colombia	—	—	179	9	—	4	192	4
Brazil	—	—	897	17	—	—	914	21
Fiji	—	—	36	—	—	—	36	1
South Africa	—	—	26	—	—	—	26	1
Guatemala	—	—	—	1	—	—	1	—
Philippines	—	—	—	356	—	—	356	8
India	—	—	—	161*	—	—	161	4
Thailand	—	—	—	18	—	—	18	—

Source: Unpublished United States import figures, United States Department of Commerce

Notes: — nil/negligible

* These figures are higher than their equivalents in the Annex Table because they include non GSP imports from the countries concerned. These figures are included in the totals of the Annex tables but are not individually listed by country.
NSPF Not Specifically Provided For

Imports of the four other categories were similar in 1981. Fruit pulp Not Specifically Provided For (NSPF), at 260 tonnes, is assumed to include passion fruit; fruit pulp including cashew apple, mamey, colorado, etc. (230 tonnes); tamarind pulp (213 tonnes); and papaya pulp (210 tonnes). Fruit pulp NSPF and papaya pulp exhibited a distinctly declining trend, again probably due to the move towards greater concentration, compared with a broadly upward trend for the other categories. The series for tamarind pulp is however confused by an import figure of 755 tonnes in 1979 which is larger than for any of the other years in the series. This high figure

is due to a increase in imports from India and the Dominican Republic and suggests that there may have been unsatisfied demand in other years.

The categories with the highest unit values in 1981 were fruit pulp including cashew, etc. (US\$ 1,248/tonne) followed by fruit paste and pulp NSPF, which is assumed to include passion fruit pulp (US\$ 1,112/tonne). Mango pulp was US\$ 1,010/tonne and guava pulp was the cheapest at US\$ 615/tonne.

Table 32, which is derived from unpublished United States customs data, shows a detailed breakdown of 1981 imports by commodity and by country. It can be seen that the Dominican Republic was easily the largest supplier of tropical fruit pulps providing under all six categories a total of 1,571 tonnes of pulp, that is, 36 per cent of total imports. The next largest supplier was Brazil (914 tonnes), almost all of which was guava pulp, followed by Mexico (579 tonnes), over half of which was guava purée and mango purée. The only other countries exporting over 100 tonnes were Costa Rica (233 tonnes), the Philippines (356 tonnes), Colombia (192 tonnes) and India (161 tonnes).

Table 33 shows United States imports over the period 1977–81, of juices Not Specifically Provided For elsewhere. These include all juices other than pineapple, citrus, apple and pear. European countries and Canada are the main suppliers as the juices involved are very largely of temperate origin, most obviously berries. However this category also includes tropical juices and a sub-total is shown in the table for juices originating in tropical countries. Supplies of the latter fluctuated without trend throughout the period, averaging 2,111 tonnes per annum and reaching 2,141 tonnes in 1981 when the main suppliers were Costa Rica, the Dominican Republic and Taiwan, all of whom were increasing their share of the market. Mexico was the biggest supplier in 1977 but its shipments have fallen off.

The unit values of juice from tropical sources averaged only US\$ 382/tonne in 1981 which suggests that these products were nectars or drinks with a low juice content.

Table 33

United States: imports of fruit juices* NSPF

	1977	1978	1979	1980	1981		
					Q	V	UV
Total	10,932	13,879	9,687	6,111	12,080	6,303	522
Total developing countries and territories listed of which from:	1,608	3,405	2,066	1,333	2,141	817	382
Mexico	734	964	263	267	138	81	587
Costa Rica	—	—	222	625	725	285	393
Dominican Republic	128	68	77	127	625	160	256
Taiwan	—	368	342	314	524	211	403
China	—	—	—	—	130	80	615
Brazil	—	804	626	—	—	—	—
Argentina	593	915	536	—	—	—	—
Sri Lanka	153	127	—	—	—	—	—
Peru	—	160	—	—	—	—	—
Iraq	—	1,478	—	—	—	—	—

Source: United States Imports for Consumption and General Imports, United States Department of Commerce.

Notes: NSPF = Not Specifically Provided For
— nil/negligible

* This table shows a mixture of juices whose specific gravity and Brix level are unknown and it is therefore not possible to make an accurate conversion from gallons to tonnes. The Brix level is probably below 150° and, for convenience sake, it has been assumed that there are 1,000 litres to the tonne, i.e. 1 tonne = 220 gallons

Q = tonnes
V = \$'000
UV = \$/tonne

Overall market profile

Per capita consumption of fruit juice in the United States in 1981 was estimated at 27 litres* and was expected to rise to nearly 30 litres by 1985. In 1980 only 22 per cent of this consumption was of fruit juice other than citrus and of this only a minuscule proportion was of tropical fruit juice. The precise size of the tropical fruit juice market is however unclear. It cannot be delineated merely by totalling imports, since significant supplies of tropical fruit pulp are shipped from Hawaii, and these are not recorded in the import figures. Papaya pulp in particular is obtained predominately from Hawaii, and occasionally from Florida. Hawaii is also a major supplier of guava pulp, and a small but growing source of passion fruit juice.

Trade comments provide the basis for the following estimates of the market for tropical fruit pulps in 1981.

Table 34

United States: estimated market for tropical fruit pulp, 1981

Fruit	Tonnes (single strength equivalent)
Mango	1,400
Guava	4,500
Papaya	2,000
Passion fruit	500
Other	500
Total	8,900

Table 31 shows that imports in 1981 were 4,410 tonnes; the balance was largely supplied by Hawaii, and accounted for some 4,500 tonnes or half total consumption.

The United States market for tropical fruit juice is still centred on the various ethnic communities. Very broadly there is a market in New York and the East Coast in the Puerto Rican and West Indian communities; a market in Miami for the Cuban and Latin community; a market in California for those of Chinese, Filipino, Hawaiian and Mexican extraction; and a market in Chicago for people of various ethnic origins. There is a demand among Caucasians but it is as yet tiny, especially when compared with the considerable quantities of citrus and temperate fruit juices consumed in the United States.

As in Europe, Caucasians have responded to increased travel abroad and exposure to new flavours. The obvious constraint is still however the high price of tropical fruit juice relative to citrus. One trader also suggested that market development has been held back because the predominant tropical products available have been nectars and not pure juice. In the Caucasian market much promotion activity in the past has been focused on the merits of pure juice; consequently nectars with their added sugar and characteristic viscosity have not been attractive to this majority sector.

In the ethnic market there is some demand for pre-packed canned nectars and drinks. Much of this trade is from the Dominican Republic and Costa Rica (see Table 33), products being shipped to the Latin community on the East Coast of the United States. The product is shipped to Miami and distributed in Florida and in New York. Canned items from Taiwan and Mexico are reportedly available on the market but these were not encountered. Pre-packed 5 fl. oz. cans of mango juice and guava juice from Egypt were found in New York, as were supplies of pre-packed juice

* ITC (1983)

originating from Hawaii, e.g. 12 oz cans of guava and papaya juice (Hawaiian Sun Brand).

Much of the East Coast ethnic demand is met by imports of frozen pulp in plastic bags. Puerto Rico (not shown in the import statistics) and the Dominican Republic are major suppliers. One importer in New York owns a pulp factory in Puerto Rico, while another in Miami is connected with a large plant in the Dominican Republic which supplies pulps of mamey, tamarind, yellow papaya, mango, guanobano/soursop and cashew apple. The Miami concern also imports red papaya from Costa Rica and Puerto Rico, and the less popular yellow papaya from Hawaii. These pulps are normally packaged with sugar in 11 lb plastic bags for retail sale, but also in 25 lb plastic bags for industrial use. The pulp is frozen with chunks included to provide the necessary body, for example for dairy product manufacture. Such pulps have a life span of some 45 days before they begin to brown. This one concern alone imports nearly 500 tonnes of this type of produce per annum, 75 per cent of which is destined for the retail trade.

There is additionally a discrete health food and gourmet trade which takes some pre-packed cans, but on the whole is serviced by conventional importers and brokers. These users prefer a frozen product to avoid possible damage by hot packing, and if possible a single-strength product. Most importers will take hot-packed products although they believe the colour to be poor, relative to frozen pulp.

In the dairy/yoghurt/ice-cream sector small quantities of papaya from Hawaii, and mango and passion fruit from Venezuela, Brazil and Argentina are being used. The per capita consumption of yoghurt in the United States is relatively low compared to Europe and exotic flavours only account for some 5 per cent of this. The large yoghurt manufacturers prefer to import the raw material either canned or frozen but 'in pieces' so they can purée it themselves to their own specifications.

In the search for variety, yoghurt manufacturers are seeking new flavours and are promoting a number of mixtures, including tropical flavours. It is possible that consumers who are introduced to tropical fruit flavours through yoghurts may be induced to buy these flavours in other forms. Other trends which have been observed in the United States market and which have a bearing on the future demand for tropical fruits are:

- 1 a move towards purchasing higher value items for stocking home refrigerators, e.g. cottage cheese with fruit;
- 2 increasing consumption of fruit at breakfast; and
- 3 the adoption of long-life aseptic packs; these were permitted under FDA regulations only in 1981.

Individual juice profiles

Passion fruit juice

In the small passion fruit juice market importers take their product from a variety of sources. One importer preferred supplies from Brazil, Sri Lanka and India, another from the Philippines and Mexico. Yet another received passion fruit juice from Fiji and Colombia and recently from Hawaii. Some supplies occasionally come from Haiti. Similarly, the type of product varied between importers. Some preferred frozen pulp, others hot-packed, each believing that the other process damaged the product. Some preferred concentrate in order to save on freight costs, others believed concentration was detrimental to quality. Colombia and Brazil were known to be supplying concentrate, most other countries single-strength juice.

Mexican passion fruit is available frozen and also in hot-packed A10 cans. Colombian passion fruit juice is liked because manufacturers use an aroma recuperator which helps produce a concentrate with better flavour than that of most of their competitors.

Unlike in Europe, the passion fruit market in the United States is the smallest of the markets for tropical fruit juices. It has recently been increasing however, and one importer believes strongly that its small size is a direct function of the lack of supply and poor promotion in the past. He believed that with regular deliveries he could expand the annual market to 3,000 tonnes very quickly.

Mango pulp

The best mango pulp was felt to originate from the Philippines and the fibreless Manila variety was particularly liked. Importers preferred this source because the pulp has traditionally been well packed and has a good taste. Unfortunately the freight charge for the long journey makes it expensive and supplies have tended to be irregular. Consequently there has often been a shortage and during these times other countries, including India, Mexico, Pakistan and Fiji, are able to supply the product.

Papaya pulp

The principal source of papaya in the United States is Hawaii. Production there has been growing and in 1981 reached 41,964 tonnes of which 2,424 tonnes went for processing*. It has been reported too, that a new plant has been completed in Hawaii with the capacity to produce 1,600 tonnes of purée†. Some papaya is also produced in Florida specifically for processing, but traders there claim that domestic production was aimed at the fresh market and was too expensive for processing.

The United States is believed to be practically self-sufficient in papaya.

Some importers preferred concentrated pulp as this saves on shipping costs, but the quality must not suffer. One of the major importers on the West Coast took single-strength pulp only. This company preferred the pulp in aseptic hot packs, partly because of the lower overheads, but also because they believe the hot packing process actually improves papaya pulp by destroying the sometimes unpleasant odour of the product. This company, however, also handled frozen pulp for the health food trade.

Guava pulp

Guava pulp is mostly obtained from Hawaii, but other sources mentioned by the trade include South Africa, Mexico, Brazil and the Dominican Republic. Supplies from sources other than these were said to be of relatively poor quality as well as being irregularly available. One importer thought that Hawaiian guava pulp was slightly tart.

The pulp can be single or double strength but pink guava is overwhelmingly preferred. The strength of Hawaiian pink guava pulp is some 9° Brix, while that of Mexican white guava is 11–13° Brix. Although viscosity is a point in favour of the latter, the colour is wrong for this market.

Tamarind pulp

There is a small and predominantly ethnic market for tamarind pulp and it comes almost exclusively from the Dominican Republic and Mexico.

Prices

Purchase prices

Table 35 shows purchase prices for imports of single-strength tropical fruit pulp into the United States in November 1982.

* USDA Statistical Reporting Service

† COLEACP *Bulletin d'information* No 26. July–August 1983.

Retail prices

Table 36 shows some retail prices for a range of tropical fruit juices observed in supermarkets in San Francisco, Miami and New York. With the exception of the Del Monte Hawaiian Punch they are all substantially more expensive than the canned grapefruit juice listed at the bottom of the table and certainly give weight to the view expressed by several traders that high prices had suppressed demand.

Table 35

United States: purchase prices for imported tropical fruit pulps

Fruit pulp	Source	US\$/tonne (Ex dock Los Angeles duty paid)
Hot-packed papaya	Hawaii	507
	Philippines	882
Frozen mango	Mexico	992
	Philippines	1,345
Frozen passion fruit (double concentration)	Hawaii	1,808
	Colombia	1,896
Frozen guava	Hawaii	662
	Mexico	882
		(C.I.F. Miami)
Tamarind	Dominican Republic	950
Mango	Dominican Republic	1,200
Papaya	Dominican Republic	1,200
Guanobano/soursop	Dominican Republic	1,330
Mamey	Dominican Republic	2,240
Guava	Dominican Republic	840
Anoon	Dominican Republic	950

Table 36

United States: retail prices of selected tropical fruit products

Product	Brand name	Net weight	Container type	Retail price (\$)	\$/kg
Hawaiian punch (containing juice of 7 fruits including guava, papaya and passion fruit plus water, sugar, etc.)	Del Monte	46 oz	can	0.73	0.56
Papaya juice drink (30% juice including grape juice)	Daisy Fresh	32 oz	bottle	1.29	1.42
Nectars of mango, guava and papaya	Kerns	12 oz	can	0.57	1.68
Machu Pichu punch (100% juice of apple, passion fruit, guava and papaya)	Westbrae Natural	32 oz	bottle	1.99	2.19
Mango drink	Edfina	5 oz	can	0.45	3.18
Passion-orange blend	Hawaii's Own	12 oz	frozen conc.	1.13	3.32
Guava nectar	Hawaii's Own	12 oz	frozen conc.	1.13	3.32
Papaya juice (includes grape juice and water)	Golden Harvest	7 oz	bottle	0.50	2.52
Guava juice nectar (includes grape juice and water)	Hansen's Natural	7 oz	bottle	0.70	3.53
Grapefruit juice	Kerns	46 oz	can	0.85	0.65
Tropical fruit salad (with papaya pieces, guava purée and passion fruit juice)	Del Monte	16 oz	can	0.89	1.96

Source: Selected supermarkets in San Francisco, Miami and New York, December 1982

Distribution channels

Imports of tropical fruit pulps into the United States are handled by a few companies and a selected list is given in Appendix V. Some of these are brokers selling to the manufacturers, and it seems that a high proportion of tropical fruit pulp is handled by brokers. One trade source estimated that 80 per cent of all papaya pulp brought into the mainland United States was handled by a single broking company.

Some processors and distributors purchase on their own behalf, but it is recognised that importing tropical fruit pulp is a particularly risky business and that dealing through brokers or importers reduces these risks. Where a supermarket chain is promoting an exotic fruit line, even when it is accustomed to buying other products direct, it will tend to purchase from a broker or importer. Brokers are different from importers in that they take a commission, while an importer obtains goods on account.

A substantial industry has grown up around the flavouring business, which specialises in supplying ingredients for flavouring for beverages, dairy products, baby food and so forth. With the continued expansion of yoghurt sales in the United States there is currently a particular interest in supplying tropical fruit flavours to the dairy industry. Papaya, mango and passion fruit are all being examined in this context, to assess their long-term prospects.

CANNED TROPICAL FRUITS

Imports

Tables 37 and 38 summarize the most recent figures for imports of canned tropical fruits. Table 37 shows a five-year series for the seven categories listed, indicating that in 1981 most tropical fruit were imported under the category of canned fruit mixtures, which do not include apricot, citrus, peach or pear. In 1981, 2,747 tonnes of this item, assumed to be tropical fruit mixtures, were imported. The next largest category was canned lychee and longan; 2,074 tonnes of products presumably very

Table 37

United States: imports of selected canned tropical fruit, 1977-81

	1977	1978	1979	1980	1981		
					Q	V	UV
Total	3,118	2,878	2,782	10,977	8,141	10,086	1,239
of which:							
Lychee or longan in air-tight containers	...	...	...	1,387	2,074	2,557	1,233
Kumquat in airtight containers	64	56	15	7	19	19	1,000
Canned fruit mixtures not including apricot, citrus, peach and pear	...	...	...	6,240	2,747	2,499	910
Guava, prepared or preserved	462	546	696	494	505	489	968
Mango, prepared or preserved	694	612	733	800	711	1,344	1,890
Papaya, prepared or preserved	1,265	1,059	630	1,351	1,036	1,133	1,094
Fruit NSPF, prepared or preserved	633	606	708	698	1,049	2,045	1,949

Source: United States Imports for Consumption and General Imports, United States Department of Commerce

Notes: ... not available
NSPF Not Specifically Provided For
Q = tonnes
V = \$'000
UV = \$/tonne

Table 38**United States: imports by source of selected canned tropical fruit, 1981**

	Lychee or Longan	Kumquat	Tropical fruit mixtures	Guava	Mango	Papaya	Fruit NSPF	Total	% total
TOTAL	2,074	19	2,747	505	711	1,036	1,049	8,141	100
of which from:									
Thailand	109	—	—	—	—	—	306	415	5
China	63	—	—	—	—	—	112	175	2
Taiwan	1,870	—	—	—	87	66	138	2,161	27
Philippines	—	—	2,688	—	89	80	255	3,112	38
Brazil	—	—	—	385	—	323	—	708	9
India	—	—	—	—	236	—	—	236	3
Dominican Republic	—	—	—	—	69	399	—	468	6
Hong Kong	—	—	—	—	36	—	—	36	—
Guatemala	—	—	—	—	—	95	—	95	1
Mexico	—	—	—	—	—	—	19	19	—

Source: United States Imports for Consumption and General Imports, United States Department of Commerce

Notes: — nil/negligible
NSPF Not Specifically Provided For

largely lychee, were imported in 1981. These two categories together accounted for 59 per cent of all canned tropical fruit imports. The next largest categories were canned fruit NSPF and canned papaya (1,049 tonnes and 1,026 tonnes respectively).

Developments to note are that imports of canned lychee increased by 50 per cent from between 1980 and 1981, although a series is not available from which to develop a trend. Tropical mixtures on the other hand fell off considerably over the same period due to a decline in supplies from the Philippines. Before 1980 tropical mixtures were included with all mixtures and these indicate that the large imports in 1980 were unprecedented and that the 1981 figure is more typical. Imports of fruit NSPF increased dramatically from 1980 to 1981, due, it is believed, to increasing demand for canned kiwi from New Zealand. Imports of the other categories shown are small and broadly stable.

The unit values of these items in 1981 ranged from US \$910/tonne for the tropical fruit mixtures to US \$1,890 for canned mangoes and US \$1,949 for canned fruit NSPF.

Table 38 provides a breakdown of 1981 imports of the same commodities by supplying country. The Philippines is the largest supplier of canned tropical fruit overall, having supplied 38 per cent of total imports in 1981. This country dominates the large tropical fruit mixtures trade, having supplied 98 per cent of all imports. It also exports canned mango and papaya as well as NSPF fruits, which are known to include jackfruit, kaong and other local fruits.

Taiwan is the second largest supplier accounting for 27 per cent of total imports in 1981, and dominating, in its turn, the canned lychee trade with a 90 per cent share of United States imports. The next largest suppliers are Brazil, shipping canned guava and canned mango, the Dominican Republic supplying papaya and canned mango, and Thailand providing canned lychee and 'other' fruit. Small quantities of canned tropical fruit were also registered from India, China and Guatemala.

Market profile

As with the juice market, demand for exotic fruit in cans is very largely restricted to the ethnic sector. The two obvious exceptions are highlighted in Table 37, namely tropical fruit mixtures and lychees. In the tropical fruit mixture category Del Monte has a virtual monopoly of the entire United States market.

Del Monte has a factory in the Philippines and exports all over the world; sales of tropical fruit mix are small beside that of temperate fruits, mandarin and pineapple, but in a declining market the company believes they have held up adequately. They do not expect any growth however. Del Monte have tried canning Mexican mango but have now ceased that operation.

Demand for lychee has increased just as in Europe, due to its popularity in Chinese restaurants, and the fruit are now more widely available in supermarkets.

Of the remaining canned fruits, guava, mango and papaya are limited to the ethnic communities with their own distribution networks and importers. Some of these are listed in Appendix V.

Canned kiwi fruit, included in fruits NSPF, is reported by some importers to be showing some signs of growth but supplies are completely dominated by New Zealand. This country has promoted the product and has benefitted accordingly. It is unlikely however that many developing countries are at present in a position to promote products in a similar manner. Without promotion it is hard to see how growth can occur.

Table 39

United States: tariffs* on imported processed tropical fruit†

Item	Full rate	GSP	LDDC	Communist countries
Canned lychee	22%		Free	35%
Canned cashew apple, mamey, sapodilla, soursop and sweetsop	2.8%		Free	35%
Canned kumquat	0.25¢ per lb	0.25¢ per lb	0.25¢ per lb	1¢ per lb
Canned guava	3%		Free	35%
Canned mango	1.5¢ per lb		Free	15¢ per lb
Canned papaya	4%		Free	35%
Canned tamarind	Free		Free	Free
Other canned tropical fruit	11.5%		Free	35%
Canned fruit mixtures not containing apricot, citrus, peach and pear	11.5%	11.5%	7%	35%
Fruit paste and pulp cashew apple, mamey, sapodilla, soursop and sweetsop	11.5%		Free	35%
Guava paste and pulp	6%		Free	35%
Mango paste and pulp	2.8%		Free	35%
Tamarind paste and pulp	15%		Free	35%
Papaya paste and pulp	17.5%	17.5%	17.5%	35%
Fruit paste and pulp, NSPF§	15%	15%	15%	35%
Fruit juices, NSPF§	3¢ per gallon		Free	70¢ per gallon

Source: *Bulletin International des Douanes* No. 21, United States. None of the communist countries, with the possible exception of Cuba, are likely to be exporting exotic fruit products in the near future

Notes: * these are a mixture of specific and *ad valorem* tariffs

† countries designated as GSP, least developed developing country and communist are listed in the *Bulletin International des Douanes*

§ NSPF—Not Specifically Provided For

MARKET ACCESS

There are no quantitative restrictions on imports of processed tropical fruit into the United States, but the duties charged on the various categories are indicated in Table 39.

All processed foods entering the United States are subject to inspection by the Food and Drug Administration (FDA) which has established 'Standards of Quality and Fill' for a number of canned products including canned nectars. The document is 146.113 and can be obtained from the FDA, Industrial Guidance Branch, 200 C Street SW, Washington DC 20204, United States.

Some end users specify their own standards, and examples of such specifications for tropical fruit juice purées, are included in Appendix VI.

PROSPECTS

With an estimated consumption of some 9,000 tonnes of fruit pulps and juices and a further 8,000 tonnes of canned tropical fruit, per capita consumption of processed tropical fruit in the United States is around 0.07 kg*. This is only 41 per cent of per capita consumption in the four European countries studied†. Despite the huge consumption of fruit products, particularly juices, in general in the United States, the market for processed tropical fruit is small both absolutely and relatively, although it is showing signs of some expansion. Much of the market is, however, centered on the ethnic trade and significant growth cannot be expected in that area.

Growth can and may come however in the Caucasian market and there are some indications to suggest this. As in Europe, the introduction of the tetra-pack and the promotion of blended multi-juice drinks have changed the image of tropical fruit juices away from that of the sweet and viscous nectar. Continued change in breakfast habits may also assist in this process.

With significant production of papaya taking place within the United States itself, it is likely that some promotion of papaya juice can be expected. This may help other tropical juices by association, as indeed may the continued success of kiwi fruit, both fresh and processed.

Other than the fact that existing nectars are not to the taste of the mass Caucasian market, the obstacles to success in general include the high and fluctuating prices of raw materials relative to citrus and other fruits, and the existing problems with procurement of supplies, i.e. irregular shipments, variable quality, colour and taste, etc. If these problems can be overcome it is probable that the market for passion fruit, mango and guava juices could be expanded, in order to satisfy a suspected latent demand for these products. A massive boom in tropical fruit juice consumption is not expected, and it is more likely that steady growth will accompany any improvements that can be made on the supply side in the source countries.

Canned tropical fruits however face a different problem. As in Europe they are perceived as an ethnic speciality. It is difficult to see how they will break out of this stereotype as, by and large, they are too sweet and bland in the canned form to appeal to the mass market. With the exception of canned kiwi fruit which has good prospects, thanks to effective promotion, few importers saw any real prospect for increased sales of exotics. One importer did say that canned papaya, promoted from Hawaii, may achieve a greater market, but there was little evidence of this as yet.

* United States population = 227,658,000, from *World Bank Atlas* 1983

† European Country population = France 53,713,000; Federal Republic of Germany 61,561,000; United Kingdom 55,944,000; Netherlands 14,144,000; *World Bank Atlas* 1983. Consumption of tropical fruit juices and canned tropical fruit in these found countries has been taken as 20,000 tonnes and 12,000 tonnes respectively (see Section 4). Per capita consumption = 0.17 kg

There is also clearly some chance of expanding demand for tropical fruits as a flavouring particularly in dairy foods such as yoghurt. The big manufacturers are looking at the possibilities, although one was unhappy with the softness of most tropical fruit, feeling it lacked sufficient body for inclusion in yoghurt.

The Japanese market for canned and juiced tropical fruit

INTRODUCTION

The Japanese consumer has only recently become acquainted with tropical fruits in any shape or form. Imported fresh papaya first appeared in 1970, fresh mango in 1975, fresh avocado and fresh kiwi fruit around 1977. The size of the market for these fruits, both fresh and processed, is still very small, although it has expanded considerably and there are reasons to believe it has real growth potential.

PRODUCTION AND EXPORTS

Small quantities of papaya and mango are produced on Okinawa but these do not ripen suitably for juicing and are instead pickled. There is no other tropical fruit production in Japan.

In 1980, 325,000 tonnes of canned fruit were produced in Japan with a value of ¥ 93,400 million. Tangerine (mikan) accounted for 58 per cent of this production; peach, 13 per cent; pineapple, 11 per cent; mixed fruits, 12 per cent; followed by cherry and apple. In 1980, 37,000 tonnes of canned fruit were exported from Japan, 99 per cent of these being tangerines.

IMPORTS OF PROCESSED TROPICAL FRUIT

Import statistics for processed tropical fruit on the Japanese market are more thorough and more detailed than for many of the other markets studied. Nonetheless they are still difficult to interpret. Essentially there are 15 relevant categories and they are shown below with imports for 1981 alongside.

- 1 Papaya, avocado, guava, durian, bilimbi, champeder, jackfruit, breadfruit, rambutan, rose-apple, jambo, jambosa, diambookaget, chicomamey, cherimoya, kehapi, sugar-apple, mango, bullock's heart, passion fruit, dooko kokosan, mangosteen, soursop and lychee:

	<i>Imports</i> 1981
a) frozen, not containing added sugar	1,789 tonnes
b) provisionally preserved	202 tonnes
c) dried	2 tonnes
2 Other fruit, frozen, not containing added sugar	8,697 tonnes
3 Mango and mangosteen, prepared or preserved by vinegar or acetic acid, containing added sugar	154 tonnes

4	Fruit purée and pastes:	
	a) containing added sugar	77 tonnes
	b) not containing added sugar	648 tonnes
5	Banana, avocado, mango, guava, and mangosteen:	
	a) containing added sugar or spirits:	
	i) in pulp form	19 tonnes
	ii) in can, bottle or pot	277 tonnes
	iii) not elsewhere specified	2,833 tonnes
	b) preserved:	
	i) in pulp form	1,630 tonnes
	ii) in can, bottle or pot	1 tonne
	iii) not elsewhere specified	12 tonnes
6	Mixed fruit, fruit salad and fruit cocktail containing added sugar	4,996 tonnes
7	Fruit containing added sugar or spirits not elsewhere specified	3,228 tonnes

Several observations are pertinent to the above statistics:

- i) Other fruit frozen probably consists largely of strawberry but includes also frozen mango from the Philippines and Taiwan, albeit only 57 tonnes and 38 tonnes respectively, as well as other possibly tropical items from China and Korea (571 tonnes and 1,494 tonnes respectively).
- ii) Fruit purée and paste containing added sugar was exclusively from non-tropical countries. However, 187 tonnes (29 per cent) of fruit purée and paste not containing sugar, originated from tropical developing countries and territories, especially the Philippines, Taiwan and Mexico. The largest component of this trade was almost certainly mango.
- iii) Of the category entitled banana, avocado, etc., significant quantities were probably banana pulp, although as both mango and banana come from the Philippines it is not possible to distinguish definitively between them.
- iv) Both the mixed fruit and fruit containing added sugar categories have a significant proportion of imports listed as arriving from developed countries (83 per cent and 51 per cent respectively).

In the light of these observations on the above figures, it is possible to deduce with reasonable accuracy that imports of processed tropical fruit into Japan in 1981 could have been as much as 11,600 tonnes if the frozen items from China and Korea were in fact tropical. This total included a considerable quantity of banana, perhaps as much as 3,000 tonnes.

Tables 40, 41 and 42 cover the main categories with which this report is concerned. Table 40 refers to frozen fruits, most of which are probably used in juicing. Imports were relatively steady until 1979 but increased very rapidly indeed thereafter. Supplies from Taiwan were probably mango, papaya and lychee and those from China largely lychee. The most dramatic development is the emergence of Mexico as a supplier, it is assumed of frozen mangoes. After only two years Mexico has become by far the largest supplier in this category.

Table 41 shows total imports of all fruit purée, not containing added sugar, with details of supplies from developing countries and territories. Clearly, total imports declined dramatically in 1981, while the quantity imported from developing countries and territories increased, from 11 per cent in 1979–81 to 29 per cent in 1981. Most of these imports were probably mango, but also included passion fruit and papaya from Taiwan, and papaya and guava from the Philippines. The United States and Australia also supplied unspecified quantities of guava (not recorded in Table 41).

Table 40**Japan: imports of papaya, avocado, guava, durian, rambutan, mango, passion fruit, mangosteen, soursop, lychee, etc., frozen, not containing added sugar**

	1975	1976	1977	1978	1979	1980	1981
Total	156	246	148	137	170	449	1,789
of which from:							
China	15	135	22	37	94	129	259
Taiwan	134	104	126	59	72	116	208
Philippines	8	2	—	39	1	82	5
Mexico	—	—	—	2	—	119	1,316
Thailand	—	5	—	—	—	4	—
United States	—	—	—	—	3	—	—

Source: Japanese Trade Statistics

Note: — nil/negligible

Table 41**Japan: imports of fruit purée and fruit paste not containing added sugar**

	tonnes		
	Average 1976-8	Average 1979-81	1981
Total	1,353	1,293	648
Developing countries and territories listed	97	145	188
of which from:			
Taiwan	19	39	55
Philippines	2	40	106
Korea	69	—	—
Korea (North)	7	—	—
Brazil	—	7	—
India	—	2	2
Mexico	—	53	25
Thailand	—	4	—

Source: Japanese Trade Statistics

Note: — nil/negligible

Table 42**Japan: imports of processed banana, avocado, mango, guava and mangosteen (including canned fruit)**

	1976	1977	1978	1979	1980	1981
Total	2,458	1,878	2,501	3,167	3,934	4,772
of which from:						
Taiwan	414	356	673	711	472	309
Thailand	82	55	89	8	6	71
Malaysia	—	—	—	—	—	20
Philippines	760	636	745	1,267	2,283	3,504
India	5	6	11	10	16	6
Honduras	909	764	787	599	602	637
South Africa	57	6	29	230	25	15
Mexico	6	—	—	—	17	10
Brazil	150	10	35	—	—	—
United States	72	35	123	340	512	200

Source: Japanese Trade Statistics

Note: — nil/negligible

Table 42 is a summary of the six categories covering imports of processed banana, avocado, guava and mangosteen. Imports appear to have increased and in 1981 were 94 per cent above their 1976 level.

The Philippines is the largest supplier in this category and it must be assumed that a significant proportion of supplies from this source is banana. Honduras was the second largest supplier; these were probably bananas, as also were supplies from Taiwan and Thailand. It must be assumed that as much as 3,000 tonnes of total imports in 1981 were processed banana.

Imports from the United States and South Africa were probably of pink guava; some guava is imported from the Philippines but it is of the white variety.

MARKET PROFILE

In 1981, 1,573 tonnes of fresh mango, 967 tonnes of fresh avocado and mangosteen and 3,267 tonnes of fresh papaya were imported into Japan; before 1970 these items were not imported at all. This growth would seem to indicate considerable interest in these fruits and shows demand to be comparable to the more established markets in Europe, particularly bearing in mind the very few years this market has had to develop.

The market has developed for a number of reasons:

- 1 As the per capita income of the Japanese has risen, so their eating habits have changed. Tropical fruit is of course still a luxury item but as the Japanese consumption of fruit continues to rise, there has been more interest in tropical fruits. Per capita consumption of all fruit juices is still however relatively very low. In 1981 The Japan Soft Drinks Bottlers' Association estimated per capita consumption of fruit juice at 1.6 litres. Orange juice was 76 per cent of this, 17 per cent was apple juice, 3 per cent grape juice, 1 per cent grapefruit juice, and 3 per cent 'other'. Per capita consumption of nectar was an additional 1 litre.
- 2 Information on these fruits has only recently been available. Some companies are beginning to promote these fruits, while others are considering initiating promotion campaigns. It is widely asserted that Japanese consumers prefer fresh fruit to processed fruit and that they have something of an aversion to strongly flavoured fruits. Promotion campaigns by manufacturers of exotic fruit products and the increasing availability of the items themselves has probably offset these effects somewhat. Nonetheless this preference for fresh fruit should not be underestimated, particularly as the Japanese have abundant year-round supplies of competitively priced domestically produced fruit. The mikan tangerine orange is only one of some forty to fifty types of fruit harvested and marketed fresh in Japan.
- 3 The Japanese overseas tourist trade has been increasing in recent years, particularly to such places as Hawaii and Guam. This has exposed large numbers of people to different diets including unfamiliar tropical fruits. As in other developed country markets it has been the experience of the trade that tourists exposed to these previously unfamiliar fruits have sought them out on their return home.

Based on the import statistics and more particularly on information supplied by the trade, it is clear that the processed tropical fruits under study can be broadly classified into three categories:

- pulps, purées and concentrates;
- ready-packed juices/nectars; and
- canned fruit.

Table 43

Japan: production of selected juices

('000 cases)

		100% juice			50% juice			Pulp/nectar/purée			10-50% juice			10-50% including pieces			Total			Total (million litres)
		c	b	t/p	c	b	t/p	c	b	t/p	c	b	t/p	c	b	t/p	c	b	t/p	
Passion fruit	1972	—	—	—	—	—	—	—	—	—	5	—	—	—	—	—	5	—	—	0.13
	1973	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	—	—	0.04
	1974	—	—	—	—	—	—	—	—	17	—	—	—	—	—	—	17	—	—	0.14
	1975	—	—	—	—	—	—	—	—	76	—	—	—	—	—	—	76	—	—	0.58
	1976	—	—	—	—	—	—	—	—	17	—	—	—	—	—	—	17	—	—	0.14
	1977	—	—	—	—	—	—	—	—	7	—	—	—	—	—	—	7	—	—	0.06
	1978	—	—	—	—	—	—	—	—	3	1	—	—	—	—	—	3	1	—	0.06
	1979	—	—	—	—	—	—	—	—	12	—	—	—	—	—	—	12	—	—	0.10
	1980	—	—	—	—	—	—	—	—	112	—	—	—	—	—	—	112	—	—	0.84
	1981	—	—	—	—	—	—	—	—	48	—	—	—	—	—	—	48	—	—	0.36
Guava	1972	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	1973	—	—	—	—	—	—	—	—	128	3	—	—	—	—	—	128	3	—	1.03
	1974	—	—	—	—	—	—	—	—	424	—	—	—	—	—	—	424	—	—	3.18
	1975	—	—	—	—	—	—	4	—	—	421	—	—	—	—	—	425	—	—	3.19
	1976	—	—	—	—	—	—	9	—	—	405	16	—	—	—	—	414	16	—	3.49
	1977	—	—	—	—	—	—	13	—	—	476	3	—	—	—	—	489	3	—	3.74
	1978	—	—	—	—	—	—	53	—	—	517	—	—	—	—	—	570	—	—	4.27
	1979	—	—	—	—	—	—	128	—	—	399	—	—	—	—	—	527	—	—	3.95
	1980	—	—	—	—	—	—	95	2	8	371	1	80	—	—	—	466	3	88	5.69
	1981	—	—	—	—	—	—	85	—	20	340	—	200	—	—	—	425	—	220	8.46
All juices	1972	1,360	1,087	71	88	35	123	4,963	1	—	5,000	26,046	254	—	—	—	11,410	27,169	448	748
	1973	2,675	4,245	465	3,404	49	493	7,967	3	—	8,332	30,749	318	—	—	—	22,380	35,046	1,277	1,039
	1974	4,462	5,322	3,292	6,593	94	839	8,680	60	24	10,402	31,243	530	—	—	—	30,137	36,720	4,680	1,219
	1975	4,568	7,404	7,265	10,204	535	2,414	11,203	10	205	14,316	37,637	668	—	—	—	40,290	45,587	10,552	1,649
	1976	4,990	8,743	9,574	13,419	730	3,417	15,196	1	353	21,235	42,921	2,549	—	—	—	54,841	58,964	15,892	2,207
	1977	4,527	6,347	9,729	18,448	10,608	5,247	17,314	22	337	30,122	48,459	4,477	643	1,764	—	71,054	67,198	19,791	2,620
	1978	5,112	7,024	11,392	21,991	8,816	10,944	17,612	2	179	42,432	61,263	6,527	2,545	2,321	16	89,691	79,429	29,058	3,276
	1979	5,065	7,246	11,045	19,418	12,435	14,419	13,521	—	90	46,075	54,249	12,828	8,647	3,172	264	92,727	77,103	38,646	3,473
	1980	4,105	7,192	10,719	14,817	7,122	13,177	10,075	2	58	35,309	25,298	19,601	22,764	2,442	1,250	87,069	69,055	44,804	3,385
	1981	4,265	9,485	12,331	12,935	6,797	13,711	8,169	—	37	32,149	48,670	26,498	28,779	4,141	3,107	86,297	69,094	55,684	3,641

Source: Juice Reference Book, Japanese Juice Association

Notes: c=canned—one case equals 30 cans each of 250 g
b=bottled—one case equals 24 bottles each of 1 litre
t/p=tetrapack—one case equals 24 cartons each of 1 litre
—=nil/negligible
For the purposes of conversion 1 litre=1 kilo

Pulps, purées and concentrates

Imports and the production of juice

The majority of tropical juices and nectars consumed is manufactured in Japan from imported pulps and purées, so it is useful to study the figures which the Japan Juice Association publishes detailing the volume of manufactured juices and nectars. These are shown in Table 43.

The manufacture of passion fruit juice and nectar has been small and variable, falling from a high of 580,000 litres in 1975 to 60,000 litres in 1977 and 1978. In 1980 it rose to 840,000 litres largely as a result of extensive promotion, but fell back in 1981 to 360,000 litres. Informed opinion in the trade believes that consumption will climb again and maintain a rising trend.

The manufacture of guava juice and nectar is on a larger scale than that of passion fruit and displays a continually rising trend, in 1981 reaching a peak of 8,460,000 litres, 126 per cent above the 1976 figure and 49 per cent above the 1980 level. Although manufacture in 1981 was still only 0.2 per cent of total juice manufacture in Japan it is still a significant figure.

On the basis of a probable dilution rate of 1:9 for passion fruit and 1:4 for guava, these juice manufacture figures indicate that imports of passion fruit and guava pulp averaged 60 tonnes and 1,415 tonnes respectively in 1980 and 1981.

These pulps are imported frozen in 200-litre steel drums or hot-packed in A10 cans. Both types of packing should have the contents, origin, and destinations clearly marked, preferably in Japanese.

The tropical fruit juice manufacturers will take pulp either frozen or hot-packed provided it is of good quality. Yoghurt, ice-cream and sherbert manufacturers prefer the frozen product.

Consumption

As already stated, the Japanese Soft Drinks Bottlers' Association has estimated the per capita consumption of fruit juice (including vegetable juice) and nectars in 1981 as 1.6 litres and 1 litre per annum respectively.

On the basis of surveys conducted by the Japanese Ministry of Agriculture, estimates of the consumption of domestically manufactured juice are published. The relevant data for 1981 are shown in Table 44.

Table 44

Japan: estimated consumption of domestically manufactured juice, 1981

Juice	'000 litres	Percentage of juice
Guava	4,800	20
Passion fruit	500	20 and 10
Mango	500	20 and 10
Papaya	—	—

These figures are of the same order of magnitude as those of the Japan Juice Association. The specific gravity of these juices is not known, but if it is assumed that there are 250 imperial gallons or 1,140 litres per tonne, then some 5,087 tonnes of juice are consumed at concentrations between 10 per cent and 20 per cent. This requires imports of between 500 and 1,000 tonnes of pulp just to satisfy the demand for drinks.

Two or three companies handle the vast majority of the tropical fruit pulps imported as raw material. Table 45 indicates the estimate of C Itoh, one of the biggest importers, for pulp imports into Japan at 1982 c.i.f. prices.

Table 45

Japan: estimated imports of tropical fruit pulp, 1982

	Tonnes	c.i.f. price (US\$/kg)
Banana	1,250	0.60
Mango	250	0.80
Papaya	250	0.70
Guava	450	0.55
Passion fruit	50	1.80

Source: C Itoh

Although these various estimates of imports differ, they do show the importance of guava pulp relative to other fruits, and give an idea of the total size of the market.

One importer believed that as much as 70 per cent of all drinks are sold through vending machines. As these commonly operate with a ¥ 100 coin, manufacturers adjust the contents of the container, usually a can, in order to ensure a margin of profit. This is one reason why the drinks containing high-value juices have a lower juice content; another reason for lower juice content is that the Japanese do not like products which are too thick in texture or too strong in flavour.

There are many types and sizes of consumer pack available on the Japanese market; cartons have the highest share of the market but bottles and cans have at least 25 per cent each.

There is also consumption of fruit pulp in yoghurt, sherbert and ice-cream although consumption of pulp other than in beverages is believed to be less than 5 per cent of the total.

Structure of the trade

There are four main manufacturers of tropical fruit drinks in Japan and one or two smaller companies. The main manufacturers and the drinks they produce are:

- *Kirin*: mango and passion fruit both at 10 per cent, and guava at 20 per cent juice content;
- *Snow*: mango, papaya and guava;
- *Suntory*: bora bora (10 per cent juice of pineapple, passion fruit and coconut cream); noa noa (10 per cent juice of guava, banana and grapefruit); upa upa (10 per cent of papaya, passion fruit and banana); and
- *Lotte*: white guava.

There are other manufacturers such as Sembikiya who make passion fruit, papaya and mango—'ade' (i.e. a drink which is less than 10 per cent juice under the Japan Agricultural Standards (JAS)—see Section *Ready-packed juices/drinks*) but they are very small.

Prospects

Both the import statistics and the Japan Juice Association production figures indicate a definite growth potential for tropical fruit pulp and purée. Most of the traders who were knowledgeable about this market were optimistic, although several qualifications were made:

- 1 The total market is still very small and in the foreseeable future will remain only a fraction of the overall pulp and purée market.
- 2 In the large vending-machine sector of the market, price competitiveness is vital. The raw material must be priced such that the manufacturer can make a profit.
- 3 In the department-store, market price is of less importance. There the unfamiliarity of the Japanese with tropical fruit and their supposedly conservative taste is of more concern. Promotion is being carried out, for example by Lotte and by Kanebo, a cosmetics company now entering the soft drinks trade. Lotte is even experimenting with passion fruit and milk mixes as a way of attracting interest.
- 4 Guava was reckoned to be the flavour with the best prospects perhaps because it had had the most promotion.
- 5 Yoghurt, ice-cream and sherbert were also suitable vehicles for tropical fruit flavours. Two to three companies had just begun lines of tropical fruit yoghurt in 1982—the most prevalent being mango.

Ready-packed juices/drinks

The majority of tropical fruit juice consumed in Japan is manufactured domestically from imported pulps as already indicated. Some ready-to-drink juice is also imported. Del Monte for example imports a pineapple and guava drink which is manufactured, packed and labelled in the Philippines, while in one leading department-store chain it was possible to find canned guava nectar, papaya and passion fruit nectar, papaya nectar and orange and passion fruit drink, all imported from Hawaii. The tariff on imported tropical fruit juice is even higher than that for pulp (up to 30 per cent compared to 25 per cent—see Table 49); both the higher tariff and the additional cost of transporting water in the diluted product make the import of ready-to-drink juices a relatively uneconomic proposition.

Countries wishing to export ready-packed juices to Japan should note that the labelling requirements are contained in the JAS for fruit juices and in Notification No. 1379 of the Ministry of Agriculture. These are available from the Ministry and exporters are strongly advised to obtain these documents and adhere to their instructions before shipment. In brief they require that the name of the product, its format, volume and weight, all the contents including any additives, the dates of production and import, and the name and address of the manufacturer be shown in Japanese. The date before which the product must be consumed must also be shown. A product with juice content of less than 100 per cent must be labelled a nectar and its juice content clearly shown. Reconstituted juices or drinks must be so labelled.

Table 46 shows retail prices for some representative tropical fruit drinks, both domestically manufactured and imported. All the domestically manufactured drinks are roughly on a par when the Semkbikiya product has been diluted. Imported products are somewhat more expensive.

Canned fruit

Imports and market profile

Imports of canned tropical fruit into Japan are very small, and reached 278 tonnes in 1981, less than 1 per cent of total canned fruit imports (see Table 47) Taiwan is the main supplier, having provided at least 63 per cent of the annual total from 1978 onwards.

Table 46

Japan: retail prices of selected tropical fruit juice/drinks, December 1982

Manufacturer	Product	Package	Price (¥)	Price (¥ per fl. oz)
Sembikiya	Passion fruit-ade	600 ml (21.12 fl. oz) bottle	1,200	56.60
	Papaya-ade Mango-ade — to be diluted 4:1			
Kirin	Passion fruit drink	195 g (6.88 fl. oz) can @ 10% juice	100	14.53
	Mango drink			
Suntory	Guava drink	195 g can @ 20% juice	150	21.28
	Upa Upa—juice of papaya, passion fruit and banana			
Isle of Gold (imported from Hawaii)	Guava nectar	12 fl. oz can	280	23.33
Five 'H' Island Foods (imported from Hawaii)	Papaya nectar	12 fl. oz can	360	30.00

Source: Field work in supermarkets in Tokyo,
December 1982

Notes: 1 fl. oz = 28.41 ml
= 28.35 g

Table 47

Japan: imports of canned tropical fruit

	tonnes					
	1976	1977	1978	1979	1980	1981
Total	200	164	351	219	145	278
of which from:						
Taiwan	111	81	237	198	120	176
Philippines	1	20	12	1	4	1
India	5	6	11	10	15	6
Thailand	79	55	89	8	6	71
United States	—	1	3	1	—	2
Malaysia	—	—	—	—	—	20

Source: Japanese Trade Statistics

Note: — nil/negligible

The canned tropical fruit market is clearly small and although it may expand slightly, it is unlikely ever to be substantial. It was repeatedly reported during field work that the Japanese will pay large sums for fresh fruit, but are not so keen on canned fruit of any kind. It must also be remembered that these canned items are relatively very expensive.

Perhaps the area with the greatest potential is the gift market. It is customary for the Japanese to give each other gifts twice yearly, in June-August and December-January periods; canned fruit packs are a substantial part of the gift market. One importer estimated that canned fruit make up perhaps 10–15 per cent of the total gift market, while gift sets of canned fruit can account for as much as 30 per cent of the canned fruit market. Canned tropical fruits are now beginning to be promoted with this gift market in mind. Two points should be made:

- 1 It is customary to give relatively expensive gifts and so the high prices of canned tropical fruits are certainly not an obstacle and may, in fact, be an attraction. One gift set included the 7 items listed in Table 48 and a can of pineapple, and retailed for ¥ 3,200.
- 2 Gift sets are in themselves a promotion. They sell more easily than tropical canned fruit does otherwise and they help to introduce people to exotic products they might not otherwise buy.

Distribution channels

Most enterprises that import canned fruit use their own labels on the products. The labels show the name of the import company, the day and month of importation, the source country, etc. It is thus possible throughout the distribution route to tell who imported the can, from where and when.

Although no accurate figures are available the Japan External Trade Organisation (JETRO) has estimated that there are about 100 companies importing canned fruits. These companies are engaged in a wide variety of enterprises and they include large trading houses, food product wholesalers, department stores, supermarkets, canned goods producers and other trade-related companies.

The one feature which these importers of canned fruits have in common is that they all have well established distribution channels. Smaller trading companies and foreign-capital based corporations often entrust distribution of their goods to the larger trading houses or wholesalers which already have a sales route of their own.

Sunyo-Do company is perhaps the major importer of canned tropical fruit with 7 different products: fruit cocktail and papaya and pineapple which they import from the Pineapple Company of Malaysia; mango, papaya, rambutan stuffed with pineapple chunks and fruit salad from the United Fruit Company of Thailand; and mangosteens from both Thailand and Malaysia. Sunyo-Do are the only company in Japan importing canned mangosteens and rambutans.

Generally canned tropical fruit is packed and labelled in the supplying countries.

Retail prices

Table 48 provides a description and includes retail prices of canned tropical fruit observed on sale in Tokyo in December 1982.

Table 48

Japan: descriptions and retail prices of some tropical canned fruit, December 1982

Manufacturer	Source	Product	Net can size (g)	Retail price (¥)
Narcissus	China	Lychee	567	510
Sunyo-Do	Thailand	Mango	250	280
Sunyo-Do	Thailand	Mangosteen	200	600
Sunyo-Do	Thailand	Papaya	250	420
Sunyo-Do	Thailand	Rambutan	220	450
Sunyo-Do	Thailand	Tropical fruit salad	250	330
Sunyo-Do	Malaysia	Tropical fruit cocktail	250	300
Sunyo-Do	Malaysia	Papaya and pineapple	270	250
Aquila	West German company, South African fruit	Guava	250	450
Aquila	Taiwan	Mango	250	450
Aquila	Taiwan	Papaya	250	450
Mount Elephant	China	Lychee	267	480

Source: Tokyo field work

THE IMPORT SYSTEM AND TARIFF RATES

All canned fruit other than pineapple is automatically granted an import licence. The tariff rates are shown in Table 49. There is also a quota system which applies only to imports of all non-frozen purées and juices. The quota is allocated to the end-user, not the importer, and refers to the quantity which he may import. The quotas in this case apply only to the purées or juices of more than 50 per cent juice concentration. These quotas have undoubtedly tended to restrict demand for fruit juices and drinks in general, and they are clearly partly responsible for the low per capita consumption of fruit juice in Japan. They were liberalised in 1978 and imports quickly rose to the new permitted level.

The quotas were set at 4,056 tonnes for purée and paste and 5,076 tonnes for pulps. Importers contacted had different views on the extent to which the quotas restricted demand for tropical fruit pulps, which is any case very small, compared to all fruit pulps, but many of them were actively lobbying for further liberalisation.

The Food Sanitation Law (No. 233 of 24 December 1947, amended 30 June 1977) and the Standards for Food Additives in Japan are applicable to all foodstuffs. These are obtainable from the Federation of Food Additives Association, Jingumae 2-6-1 Shibuya-Ku, Tokyo 150. Failure to adhere to the instructions could lead to delays at Customs or even the return of goods.

The Food Sanitation Act (FSA) stipulates that edible foods (including canned fruit) must not contain certain synthetic additions or agricultural chemical residues; these are listed in the FSA. Moreover, all additives must be clearly indicated on the outside label. Fruit salad must, as defined by the JAS, have larger chunks than the fruit cocktail which in turn must be made up of cubed pieces. As a rule imported products and their labels are checked at the port of entry and those articles which do not meet requirements are seized.

Table 49

Japan: tariff rates for imported processed tropical fruit (not including pineapple)

Commodity	General rate %	GATT %	Preferential rate %
Fruit otherwise prepared or preserved			
(i) containing added sugar or spirit			
—in pulp form	35	35	35
—in cans, bottles or pots	28	28	15
(ii) other			
—in pulp form	25	25	25
—in cans, bottles or pots	20	20	15
—mixed fruit, fruit salad, fruit cocktail	20	20	12
Fruit purées and pastes			
(i) containing added sugar	40	40	40
(ii) other	25	25	25
Fruit juice, unfermented and not containing spirit			
(i) containing added sugar (including mixtures)	27	27	27
(ii) other (including mixtures)	30	22.5	22.5

Source: *Bulletin International des Douanes*

Note: 'Preferential' refers to Article 8 of the Customs Temporary Measures Law and Annexes II, III and IV thereto

Appendices

APPENDIX I: TABLES

Table A

France: imports of 'other' fruit and vegetable juices*

	1977	1978	1979	1980	1981		
					Q	V	V\$
TOTAL Q	6,044	6,551	6,836	7,806	9,529	60,464	11,126
V	20,973	25,340	35,321	43,463	60,464		
UV	3,470	3,868	5,167	5,568	6,345		
Total developing countries and territories listed of which from:	361	294	572	932	1,364	9,865	1,815
Sri Lanka	24	55	107	113	339	1,529	281
Brazil	46	108	254	482	780	5,755	1,059
Martinique	45	91	75	89	27	144	26
Morocco	136	—	21	20	54	268	49
India	23	4	27	16	10	72	13
Thailand	—	—	—	20	26	257	47
Taiwan	2	3	10	41	32	370	68
Colombia	—	—	6	1	38	451	83
Argentina	73	—	—	35	17	82	15
Peru	—	25	60	106	77	853	157
Singapore	13	6	4	2	4	39	7
Philippines	—	1	8	7	5	48	9
Total EC	4,782	4,917	5,193	6,165	7,512	42,710	7,589
Total mixtures	666	549	889	1,097	1,134		
Total @ UV < 30 ECU/100 kg	1,635	1,651	1,170	1,645	1,342		
Total @ UV > 30 ECU/100 kg	4,409	4,900	5,666	6,161	8,187		

Source: *Statistiques du commerce extérieur de la France, Direction generale des douanes.*
Paris

Notes: US\$ 1.00 = FF 5.4346

Q = tonnes

V = FF'000

V\$ = US\$'000

UV = FF/tonne

*of specific gravity < 1.33 @ 15°C, including mixtures

Table B

Federal Republic of Germany: imports of 'other' fruit juices*

	1977	1978	1979	1980	1981		
					Q	V	V\$
TOTAL Q	11,670	11,996	16,034	15,914	20,923	67,497	29,886
V	29,881	31,027	37,170	50,392	67,497		
UV	2,560	2,597	2,318	3,167	3,226		
Total developing countries and territories listed of which from:	603	810	1,319	5,301	6,420	30,347	13,428
Kenya	—	217	—	669	860	5,111	2,262
Peru	—	—	72	117	111	682	302
Brazil	131	333	811	2,304	4,184	20,079	8,885
Chile	73	—	—	24	62	339	150
Argentina	—	—	45	104	52	234	104
Sri Lanka	314	156	216	634	873	2,807	1,242
Taiwan	—	—	—	—	116	555	246
Fiji	—	—	—	—	64	277	123
Dominican Republic	—	—	123	130	44	145	64
Mexico	—	—	14	—	20	118	52
Costa Rica	—	—	52	—	—	—	—
Turkey	85	104	—	—	—	—	—
Total EC	7,082	7,301	7,496	9,084	10,558	22,569	9,986
Total mixtures	1,170	2,172	4,545	2,595	5,139		
Total @ UV < 30 ECU/100 kg	2,083	1,386	3,270	996	1,109		
Total @ UV > 30 ECU/100 kg	9,587	10,610	12,764	14,918	19,814		

Source: Statistisches Bundesamt, Wiesbaden

Notes: US\$ 1.00 = DM 2.2600

Q = tonnes

V = DM'000

V\$ = US\$'000

UV = DM/tonne

*of specific gravity < 1.33 @ 15°C, including mixtures

Table C

Netherlands: imports of 'other' fruit and vegetable juices*

	1977	1978	1979	1980	1981		
					Q	V	V\$
TOTAL Q	5,149	5,306	6,930	8,878	10,034	42,969	17,220
V	23,641	23,835	28,137	39,447	42,969		
UV	4,591	4,492	4,060	4,443	4,282		
Total developing countries and territories listed of which from:							
Kenya	587	1,076	1,711	4,597	4,280	19,308	7,738
Costa Rica	179	168	166	461	298	2,385	956
Colombia	—	—	74	46	—	—	—
Venezuela	28	—	61	228	402	2,157	864
Peru	53	68	27	95	—	—	—
Brazil	—	52	80	262	599	2,524	1,012
Argentina	193	287	610	2,366	888	6,033	2,418
Sri Lanka	—	367	201	158	312	992	398
Malaysia	134	134	492	794	1,432	4,163	1,668
Taiwan	—	—	—	68	113	305	122
Chile	—	—	—	62	236	749	300
Total EC	3,824	3,665	4,657	3,332	4,266	17,116	6,860
Total mixtures	484	543	560	467	721		
Total @ UV < 30 ECU/100 kg	226	180	1,047	48	151		
Total @ UV > 30 ECU/100 kg	4,923	5,126	5,883	8,830	9,883		

Source: Maandstatistiek van de buitenlandse handel per goederansoort, Centraal Bureau voor de Statistiek, The Hague

Notes: Some of the composite categories are not broken down by source
 US\$ 1.00=f 2.4952
 Q = tonnes
 V = f'000
 V\$ = US\$'000
 UV = f/tonne
 *of specific gravity < 1.33 @ 15°C, including mixtures

Table D

United Kingdom imports of 'other' fruit and vegetable juices*

	1977	1978	1979	1980	1981		
					Q	V	V\$
TOTAL Q	2,119	2,945	2,268	2,185	5,444	2,145	4,350
V	1,396	1,576	1,433	1,317	2,145		
UV	659	535	632	603	394		
Total developing countries and territories listed of which from:	878	322	240	200	70	98	199
Pakistan	1	64	58	12	5	2	5
India	11	42	2	44	12	8	16
Peru	12	75	—	7	5	2	5
Brazil	—	—	4	11	15	73	147
Jamaica	50	68	30	76	30	12	24
Taiwan	9	41	83	22	1	1	1
Hong Kong	—	—	16	7	1	1	1
Argentina	780	20	—	—	—	—	1
Sri Lanka	—	—	4	1	—	—	—
Singapore	1	—	5	15	—	—	—
Windward Islands	1	—	—	1	—	—	—
Kenya	2	—	24	24	—	—	—
China	4	12	14	1	—	—	—
Philippines	—	—	—	2	1	1	1
Total EC	1,166	1,333	1,682	1,757	2,399	1,042	2,113
Total mixtures	1,492	345	520	517	2,994		
Total @ UV < 30 ECU/100 kg	16	24	333	221	297		
Total @ UV > 30 ECU/100 kg	2,103	2,921	1,935	1,964	5,020		

Source: Overseas Trade Statistics, HM Customs and Excise

Notes: US\$ 1.00 = £ 0.4931

Q = tonnes

V = £'000

V\$ = US\$'000

UV = £/tonne

*of specific gravity < 1.33 @ 15°C, including mixtures

Table E

Switzerland: imports of 'other' fruit juice with sugar

	1977	1978	1979	1980	1981				
					Q	% Total	V	V\$	UV
TOTAL Q	297.3	167.2	169.1	202.0	249.8	100	1,045	532	2,130
V	411.2	412.1	483.6	672.1	1044.8				
Total developing countries and territories listed of which from:	...	—	5.2	6.2	13.0	5	50	25	1,923
India	...	—	—	—	3.6	1	10	5	1,389
Dominican Republic	...	—	—	—	6.7	3	21	11	1,642
Puerto Rico	...	—	5.2	3.1	2.7	1	19	10	3,703
Philippines	...	—	—	3.1	—	—	—	—	—
EC	...	95	101	161	220	88	938	478	2,173
Israel	...	—	17	—	—	—	—	—	—
United States	...	15	16	22	9	4	40	20	2,222
of which in glass bottles 2 decilitres	153.9	23.8	23.0	20.1	8.5	3	22	11	1,294

Source: Statistique annuelle du commerce extérieur de la Suisse

Notes: ... not available

— nil/negligible

US\$ 1.00 = SF 1.9642

Q = tonnes

V = f'000

V\$ = US\$'000

UV = US\$/tonne

Table F

Switzerland: imports of 'other' unsweetened fruit juice*

	1977	1978	1979	1980	1981				
					Q	% Total	V	V\$	UV
TOTAL Q	17,964	16,224	18,923	19,694	22,485	100	57,220	29,131	1,296
V	39,190	38,471	43,892	46,606	57,220				
Total developing countries and territories listed of which from:	...	4,758	6,865	7,780	9,684	43	22,915	11,666	1,205
Ivory Coast	...	—	—	—	9	—	11	6	667
Kenya	...	18	24	12	32	—	105	53	1,656
Iraq	...	20	—	34	81	—	111	57	704
Sri Lanka	...	7	—	5	43	—	152	77	1,791
Thailand	...	—	—	—	7	—	34	17	2,429
Taiwan	...	—	—	—	13	—	49	25	1,923
Philippines	...	—	31	62	81	—	160	81	1,000
Mexico	...	26	16	74	41	—	198	101	2,463
Dominica	...	—	—	—	10	—	21	11	1,100
Brazil	...	3,844	5,905	7,093	9,021	40	20,930	10,656	1,560
Argentina	...	795	829	457	336	1	1,030	524	5,800
Peru	...	—	—	3	10	—	114	58	—
Morocco	...	34	—	—	—	—	—	—	—
Swaziland	...	13	48	—	—	—	—	—	—
India	...	1	—	—	—	—	—	—	—
Venezuela	...	—	12	5	—	—	—	—	—
Libya	...	—	—	35	—	—	—	—	—
Total EC	...	5,110	4,733	5,028	5,569	25	14,352	7,307	1,312
United States	...	2,398	2,099	3,126	2,944	13	6,794	3,459	1,174
Israel	...	1,814	2,750	2,124	2,612	12	6,418	3,267	1,251

Source: Statistique Annuelle du Commerce
extérieur de la Suisse

Notes: US\$ 1.00 = SF 1.9642

— nil/negligible

... not available

Q = tonnes

V = SF'000

V\$ = US\$'000

UV = US\$/tonne

*(other than grape, vegetables, lemon)

Table G**France: imports of 'other' canned fruit (without alcohol)**

	1977	1978	1979	1980	1981		
					Q	V	V\$
Total Q	17,215	19,159	18,934	21,298	22,650	98,825	18,184
V	54,745	62,781	69,523	81,652	98,825		
Total developing countries and territories listed of which from:	5,897	8,060	5,260	5,945	5,957	29,730	5,471
China	691	662	776	536	787	4,932	908
Philippines	6	52	305	789	1,223	4,099	754
Thailand	180	403	209	476	271	689	127
Peru	11	69	26	36	52	364	67
Panama	-	60	15	417	396	1,498	276
Brazil	5	-	11	69	114	543	100
Taiwan	810	636	949	1,448	1,443	9,300	1,711
Hong Kong	8	8	4	6	31	73	13
Singapore	9	42	16	4	3	32	6
Morocco	500	83	68	41	58	218	40
Mexico	181	671	89	-	-	-	-
Malaysia	15	18	5	7	11	101	19
Martinique	44	75	89	126	86	170	31
Algeria	41	20	31	-	53	157	29
Swaziland	373	271	233	181	45	244	45
Ivory Coast	2,275	2,178	1,196	982	860	3,322	611
Honduras	225	385	437	181	166	603	111
Kenya	-	-	200	112	63	650	120
India	50	20	9	7	11	157	29
Colombia	-	45	-	37	-	-	-
Tunisia	161	105	255	15	-	-	-
Ecuador	3	10	40	49	13	176	32
Windward and Leeward Islands	-	-	53	21	50	547	101
Total EC	9,081	10,192	11,688	13,946	14,817	62,795	11,555
Total mixtures	8,171	9,774	11,150	13,071	14,122	57,974	10,668

Source: Statistiques du commerce extérieur de la France

Notes: US\$ 1.00 = FF 5.4346
Q = tonnes
V = FF'000
V\$ = US\$'000

Table H**Federal Republic of Germany: imports of 'other' canned fruit (without alcohol)**

	1977	1978	1979	1980	1981		
					Q	V	V\$
Total Q	77,143	76,616	78,561	78,342	67,388	112,018	49,656
V	98,845	96,102	100,141	104,994	112,018		
Total developing countries and territories listed of which from:	4,032	3,522	4,148	6,331	6,016	10,927	4,835
Korea	-	-	-	89	51	142	63
Philippines	-	-	118	137	112	397	176
Argentina	-	1,173	79	-	-	-	-
Ivory Coast	595	-	-	-	142	300	133
India	1,210	132	197	193	385	971	430
China	175	692	812	589	784	3,019	1,336
Honduras	1,212	773	1,278	999	662	1,243	550
Panama	342	332	398	1,551	2,096	3,640	1,611
Brazil	-	-	105	409	403	1,082	479
Sri Lanka	-	-	-	143	-	-	-
Mexico	-	-	38	-	-	-	-
Costa Rica	-	-	34	-	-	-	-
Haiti	-	-	-	37	58	133	59
Taiwan	498	420	1,089	2,184	1,323	3,091	1,368
Total EC	70,611	65,949	66,754	56,119	48,521	67,323	29,789
Total mixtures	28,615	24,100	24,160	24,958	26,932	52,336	23,158

Source: Statistisches Bundesamt, Wiesbaden

Notes: US\$ 1.00 = DM 2.2600
Q = tonnes
V = DM'000
V\$ = US\$'000

Table I

Netherlands: imports of 'other' canned fruit (without alcohol)

	1977	1978	1979	1980	1981		
					Q	V	V\$
Total Q	23,365	20,503	21,185	24,179	26,601	51,164	20,505
V	32,910	33,899	36,101	42,744	51,164		
Total developing countries and territories listed of which from:							
Philippines	3,763	3,256	3,193	4,292	4,827	9,676	3,878
Ivory Coast	245	165	183	190	181	713	286
Haiti	-	-	-	-	92	204	82
India	-	67	40	482	70	187	75
China	2,982	2,441	2,282	2,307	819	2,076	832
Colombia	-	-	-	31	62	138	55
Honduras	187	324	214	327	89	183	73
Panama	-	48	216	111	153	195	78
Thailand	-	-	32	83	79	276	111
Malaysia	-	-	-	18	18	61	24
Taiwan	262	193	226	644	892	2,376	952
Hong Kong	25	18	-	45	31	127	51
Indonesia	7	-	-	-	-	-	-
Costa Rica	-	-	-	-	84	164	66
Venezuela	-	-	-	-	12	63	25
Brazil	-	-	-	54	-	-	-
Turkey	55	-	-	-	-	-	-
Total EC	16,198	11,222	12,428	13,231	17,517	31,598	12,664
Total mixtures	10,665	11,807	11,288	13,446	12,847	22,018	8,824

Source: Maandstatistiek van de buitenlandse handel per goederensoort, Centraal Bureau voor de Statistiek, The Hague

Notes: US\$ 1.00 = f 2.4952
Q = tonnes
V = f1'000
V\$ = US\$'000

Table J

United Kingdom: imports of 'other' canned fruit (without alcohol)

	1977	1978	1979	1980	1981		
					Q	V	V\$
Total Q	35,537	93,132	96,530	70,620	79,660	31,979	64,853
V	14,525	32,442	33,503	26,220	31,979		
Total developing countries and territories listed of which from:	2,817	6,651	6,021	4,245	4,824	2,940	5,962
Philippines	753	1,063	938	1,408	1,776	1,031	2,091
Singapore	56	13	12	25	36	34	69
Hong Kong	34	52	91	96	85	84	170
India	443	1,308	1,302	901	1,084	529	1,073
Swaziland	164	-	-	-	-	-	-
Peru	4	22	-	6	6	3	6
Iran	-	-	-	-	7	2	4
Brazil	8	3	1	-	351	207	420
Indonesia	-	-	-	-	1	1	2
Malaysia	6	16	37	7	38	21	43
Ghana	-	-	-	1	61	94	191
China	235	3,006	2,626	507	206	136	276
Puerto Rico	-	-	-	7	35	41	83
Taiwan	861	525	466	507	698	381	773
Panama	-	-	-	19	39	15	30
Jamaica	14	108	180	76	126	219	444
Thailand	-	-	-	4	13	19	39
Honduras	212	326	175	95	77	31	63
N Yemen	-	-	-	1	-	-	-
Pakistan	27	31	75	25	-	-	-
Botswana	-	-	-	52	-	-	-
Argentina	-	80	-	508	175	92	187
Belize	-	-	63	-	-	-	-
Sri Lanka	-	1	3	-	-	-	-
Kampuchea	-	-	1	-	-	-	-
Surinam	-	17	17	-	-	-	-
Upper Volta	-	-	15	-	-	-	-
Mauritius	-	29	-	-	-	-	-
Costa Rica	-	-	19	-	-	-	-
Tonga	-	51	-	-	-	-	-
Total EC	4,394	27,131	30,632	13,956	18,271	7,543	15,297
Total mixtures	26,803	33,646	32,223	32,271	38,512	15,863	32,170

Source: Overseas Trade Statistics, HM Customs and Excise

Notes: US\$ 1.00 = £ 0.4931
Q = tonnes
V = £'000
V\$ = US\$'000

APPENDIX II: SUPPLIERS OF PROCESSED TROPICAL FRUIT

The following list gives the names of some firms known to be trading processed tropical fruit and, where known, the items they handle. The list should not however be regarded as exhaustive. Inclusion in the list does not imply any knowledge on the part of TDRI as to the financial standing of the firms. Rather it is based on the firms who have contacted TDRI for information on markets as well as those firms contacted by TDRI during the course of research for this report.

Frutene Industria de Frutas do Nordeste s.a. Passion fruit juice
Av Estados Unidos, 340
Sola 506
CEP 40,000
Salvador
Bahia
Brazil

<p>Adela Empreendimentos e Consultoria Ltd Avenida Brigadeiro Faria Lima 1815 9° Andar Sao Paulo Brazil</p>	<p>Passion fruit juice and probably others</p>
<p>Industria Nacional de Conservas, S.A. Calle 58 No. 27-06 Bucarama Colombia</p>	
<p>Laboratorios Technicos Cia Lta PO Box 3755 Av Miraflores 208Y Calle Segunda Guayaquil Ecuador</p>	
<p>Ecuajugos SA Guayaquil Ecuador</p>	<p>Passion fruit, mango and papaya, and other juices</p>
<p>Foods, Fats and Fertilizers Ltd Fountain Plaza, 7th Floor P B No. 759 Madras India</p>	<p>Guava, papaya and probably mango</p>
<p>MAFCO Mistry Bhavan, 6th Floor Dishaw Vachha Road Bombay 400020 India</p>	
<p>Mitchells Kissan Products Ltd STC BNG 281 Bangalore India</p>	
<p>Regal Trading Company 217 Bombay Market Tardeo Main Road Bombay-34 (W.B) India</p>	
<p>United Breweries Ltd 24 Grant Road Bangalore 560001 India</p>	
<p>Dr Writer's Chocolates & Canning Co Bhavanishankar Road Dadar Bombay-28 India</p>	
<p>Herbertons Ltd Ewart House Bruce Street Post Box 431 Bombay-1 India</p>	

Indian Industries Export House Ltd
31 Mount Road
Madras-2
India

M/s D. & P. Products Pvt. Ltd
Bombay-Agra Road
Bhandup
Bombay-78
India

S. Kelly & Company
Maneckji Wadia Building
127 M G Road
Bombay-1
India

Mida & Co Pvt. Ltd
33 Biplabi Rashbehari Basu Road
Calcutta-1
India

Regal Trading Co
70 Commercial Chambers
Masjid Bunder Road
Bombay-3
India

S. R. Cannery
148 Altarwiya Road (Kalyani Devi)
Allahabad (U.P)
India

Coca-Cola Export Corporation
14-A, Nizam-Ud-Din West
New Delhi-110 013
India

Mango pulp

Allahabad Canning Company
PO Banrauli, Allahabad
India

Mango juice

Alpha Fruit Products Pvt. Ltd
4th Floor, Prospect Chambers
317-21, Dr D. N. Road, Bombay
India

Mango juice

Tims Products Ltd
Belgharia, Calcutta 700056
India

Mango juice

Grace Kennedy and Co Ltd
64 Harbour Street
Kingston
Jamaica

Mango juice, tropical fruit
punch

TRUFOODS
PO Box 41521
Nairobi
Kenya

Passion fruit juice

Del Monte S A Carretera 45 KM 337 Riapuate Mexico	Makes guava nectar for the United States
N S C Trading Corporation PO Box 631 MCC Makati Metro Manila Philippines	Various tropical juices
Pure Foods Corporation Ortigas Building Ortigas Avenue Pasig Metro Manila Philippines	Tropical pulps
Rustan Commercial Corp Rustan Superstore Cubao Quezon City Philippines	Dried tropical fruits
RFM Corporation PO Box 7089 Manila Philippines	Pulps of mango, guava, papaya, kalamansi, soursop, cherimoya
San Miquel 6766 Ayala Avenue Makati Manila Philippines	Juices of mango, guava, papaya, soursop, also papaya slices
Raman S Sevilla Inc 2001 Taft Ave Metro Manila Philippines	Mango pulp Mango wine Savoury concentrate
Katas Foodstuffs Inc 163 de los Santos Ave Mandalayas Metro Manda Philippines	Mango juice
Cenmaco Inc Marcos St. San Juan Metro Manila Philippines	Mango nectar
Food Masters Inc 127 Lozada St San Juan Metro Manila Philippines	Purées of mango, guava, papaya, banana, kalamansi
Lorenzana Food Corporation 551 M Naval St Navotas Metro Manila Philippines	Canned mangoes, pickled papaya, frozen guavas

Standard Food Products
2350 Gauban St
Balut
Tondo
Box 1607
Manila
Philippines

Mango products
Sliced papaya in cans
Bottled jackfruit
Tropical nectars
Tropical fruit cocktail

NSC Trading Corps
PO Box 631
MCC Makati
Metro Manila
Philippines

Tropical fruit pulps

Productora Santo Domingo
San Juan de la Maguana
21 Santo Domingo
Dominican Republic

Frozen pulps and nectars

Hong See & Sons
Queen Street
PO Box 72
Singapore 9188
Singapore

Sudharson Exports
82 Beach Road
Colombo
Sri Lanka

Thai Union Commercial Co Ltd
678/1-3 Bahrungmuang Rd
Bangkok
Thailand

FRICA
Los Corijos de Lourdes
Caracas
Venezuela

YURKERY
4a Transversal
Los Dos Caminos
Caracas
Venezuela

N'tingila Ltd
PO Box 569
Kasama
N. Province
Zambia

Passion fruit juice

APPENDIX III: EUROPE: SELECTED OPERATORS IN THE PROCESSED TROPICAL FRUIT TRADE

France

Importers/agents/wholesalers

Tradimpex—J M Thiercelin
45 rue Alexandre-Fourny
94500 Champigny-sur-Marne

SA La Pulpe
M.I.N. Rungis
14 rue de Seminaire
95416 Rungis

ETS Courrier SA
21-29 av. Gaston Monnausseau
92340 Stains

ETS Menes
16 Boulevard Jean Jaures
92113 Clichy

G Soreau
62 rue Motiere
94200 Ivry-sur-Seine

Fauchon (importer/wholesaler/retailer)
26 Place de la Madeleine
Paris

Manufacturers

Alfonse Isnard
26 rue Jules Massenet
94300 Vincennes

Caraibos
21 rue de la Roquette
75011 Paris

Gervais-Danone
92302 Levallois

Federal Republic of Germany

Importers/agents/wholesalers

Wachsmath and Krogmann
Mundsburger Damm 6
2000 Hamburg 22

Deutsche Staudt GmbH
Monckebergstrasse 27
2000 Hamburg 1

Wilheim Philip GmbH
Frauenbergstrasse 2
8355 Hengersberg

Von Lind & Co
Gansemarkt 21-23
2000 Hamburg 36

J Heimerdinger
Neuer Wall 34
2000 Hamburg 36

Edeka Centrale (retail group)
New York Ring 6
2000 Hamburg 1

Georg & Jurgen Rickertson (also
manufacturer)
Sachsenstrasse 8
2000 Hamburg 1

Manufacturers

International Flavours & Fragrances GmbH
Reeser Strasse 60
4240 Emerich 1

Wilhelm Stute KG
Abstbrede 129
4790 Paderborn

Junita Fruchtsaft Marketing und Vertriebs
GmbH

Darmstadter Strasse 29
6080 Gross-Gerau

Deutsche Granani GmbH
Kammerratsheide 31a
4000 Bielefeld 1

Vaihinger Fruchtsaft
Hauptstrasse 26
7000 Stuttgart 80

Netherlands

Importers/agents/wholesalers

Eurocitrus BV
Albustraat 5
PO Box 227
4900 AE Oosterhout

International Flavours & Fragrances BV
Bevenheuvelweg 60
5048 An Tilburg

Go Tan BV
Sporstraat 57
Kesteren

Asian Food Specialities
Sloterweg 192
Badheuedorp

BV Lucullus
Neuweweg 114
Wormer

BOAS
Postbus 340
2700 AH Zoetermeer

Winters BV
Oranje Nassaulaan 38
6026 BX Maarheize

Hollandse Pelmolens
Westhavenkade 116
PO Box 96
3130 Ab Vlaardingen

Unilever Inkoop Mij BV
s'Gravelendseweg 555
3119 XT Schiedam

Manufacturer

Hero Nederland
Teteringridijk 227
PO Box 3243
4817 ME Breda

Switzerland

Importers/agents

Passi Ltd
4862 Rothrist

Gustav Gerig & Co. Ag
Volkmarstrasse 4
8035 Zürich

Stutzer AG
Seminarstrasse 28
8057 Zürich

International Flavours & Fragrances
Europastrasse 15
5600 Lenzburg AG

Migros
152 Limmatstrasse
Case Postale 226
8031 Zürich

Coop Suisse
Thiersteinerallee 14
Case Postale 1285
4002 Basel

United Kingdom

Importers/agents

S & S Services Ltd
Abford House
15 Wilton Road
Victoria
London SW1V 1NE

E E Brian Smith (1928) Ltd
44-6 Chapel Street
Marlow
Bucks SL7 1DD

Brian Smith & Sons Ltd
Winchester Square
London SE1 9AG

Unigate Dairies Ltd
Farmers Wife House
Western Avenue
London W3 0RW

Del Monte Foods
Astronaut House
Hounslow Road
Feltham
Middlesex TW14 9AE

Adams Foods
Springfield Road
Leek
Staffs ST13 6EN

ENCO Products
75 Fortess Road
London NW5

G Costa & Co. Ltd
Staffordshire Street
London SE15 5TL

Top-op Foods Ltd
7 Garland Road
Stanmore
Middlesex

Evans, Gray & Hood Ltd
Berkshire House
168-173 High Holborn
London W1V 7AF

Bombay Emporium Ltd
Radiant House
Pegamoid Road
London N18

Kiril Mischeff Ltd
Broadwall House
21 Broadwall Road
London SE1

T R Suterwalla & Sons Ltd
2 Southbridge Way
Southall
London

B E International Foods Ltd
Radiant House
Pegamoid Road
London N18

Fuerst Day Lawson Holdings Ltd
1 Leadenhall Street
London EC3V 1JH

Petty Wood & Co. Ltd
15/16 Dufferin Street
London EC1Y 8NU

APPENDIX IV: UNITED STATES: SELECTED OPERATORS IN THE PROCESSED TROPICAL FRUIT TRADE

Importers/agents/wholesalers

A M Beebe Company
50 California Street
Suite 950
San Francisco
California 94111

T & P Brokerage Co. Inc.
2500 East Colorado Boulevard
Pasadena
California

Iberia Foods Corporation
195-217 Liberty Avenue
Brooklyn
New York 11207

International Flavours & Fragrances
521 West 57th Street
New York 10019

Regla Import/Export
7370 N.W. 36th Street
Suite 319B
Miami
Florida 33166

Mira International Foods Inc.
716 Clinton Street
Hoboken
New Jersey

R J R Foods
360 South Acacia Avenue
Fullerton
California 92634

Del Monte Corporation
1 Market Plaza
PO Box 3575
San Francisco
California 94119

La Fe Tropical Fruits Inc.
615 South West Avenue
Miami
Florida

Lou Scharf
240 Central Park South
New York 10019

Philippine Foods Corporation
69-06 Roosevelt Avenue
Woodside
New York 11377

Goya Foods
25 12th Street
Brooklyn
New York 11215

Nationwide of Chicago
360 East North Avenue
Northlake
Illinois 60164

Manufacturers

Hansen Foods Inc.
16121 Canary Street
La Mirada
California 90638

Kern Foods Inc.
1300 East Temple Avenue
PO Box 1207
City of Industry
CA 91749

La Preferida Inc.
3400 35th Street
Chicago
Illinois 60632

National Papaya Co. Ltd
Box 15021
Tampa
Florida 33684

Daisy Fresh Products Co.
1211 East Noble Avenue
Visalia
California 93279

APPENDIX V: UNITED STATES: SAMPLES OF END-USER SPECIFICATIONS FOR TROPICAL FRUIT PURÉES*

PAPAYA PURÉE

Description

Papaya purée is manufactured from mature, sound papaya. It is passed through a finisher with a 0.020 inch screen. Ascorbic, citric or malic acid may be added to lower the pH to under 4.5. The product is packaged and frozen in a clean container.

Standards

Brix:	14.0° (Minimum 12.0°)
Moisture:	85.3%
Ash:	0.68%
Fat:	0.162%
Protein:	0.657%
Carbohydrate:	13.5%
Calories/100 g:	50
pH:	Under 4.5 (prefer 4.1 to 4.2)
Standard Plate Count:	50,000/g maximum (frozen)
Salmonella:	Negative
Mould Count:	Less than 10% by Howard Mould Count
Colour:	Golden yellow, no caramelization
Defects:	Practically free from defects
Flavour:	Good papaya flavour, free from off-flavour and taste

MANGO PURÉE

Description

Mango purée is manufactured from mature, sound mangoes; seed and skin are removed, pulp is passed through 0.033 inch screen. It is packed in either No. 10 or 5-gallon cans, or frozen in boxes or drums.

Standards

Brix:	15 to 18
pH:	4.0 to 4.5
Colour:	Bright yellowish-orange
Flavour:	Good, free from off-taste and odour
Defects:	Practically free of defects
Standard Plate Count:	50,000/g maximum (frozen)
Salmonella:	Negative
Mould Count:	Less than 10% by Howard Mould Count

GUAVA PURÉE

Description

Guava purée is manufactured from mature, sound guavas and passed through finisher with 0.020 inch screen. Variety preferred is pink Hawaiian type (yellow or white is acceptable, providing it meets all other specifications). The purée is packed in either No. 10 or 5-gallon cans, or frozen in drums or boxes.

* Obtained from trade sources

Standards

Brix:	8.0 to 10.0 (8.0 minimum)
Acid:	0.4 to 0.9
pH:	Under 4.5
Standard Plate Count:	Less than 50,000/g if frozen
Salmonella:	Negative
Mould Count:	Less than 10% by Howard Mould Count
Colour:	Pinkish. Or, if it is the white variety, it should be white; the yellow variety should be a pale yellow
Defects:	Practically free of defects
Flavour:	Good guava flavour; free from off-taste and odour

Source: *The world market for fruit juices.* International Trade Centre (UNCTAD/GATT) 1982.

APPENDIX VI: JAPAN: SELECTED COMPANIES IN THE PROCESSED TROPICAL FRUIT TRADE

Trading companies

Mitshubishi Corporation
3-1 Marunouchi 2-chome
Chiyoda-Ku
Tokyo

Sunyo-Do Co. Ltd
1-3-21 Nihonbashi-Horidomecho
Chuo-Ku
Tokyo 103

Mitsui & Co. Ltd
1-21- Ohte-Machi
Chiyoda-Ku
Tokyo

Marubeni Shokoryo
Marushoka Soko Building
3-3-2 Higashi-Shinagawa
Shinagawa-Ku
Tokyo

Kokubu (K & K) Ltd
1-1-1 Nihonbashi
Chuo-Ku
Tokyo

Sumitomo Corporation
3-24-1 Kanda-Nishikicho
Chiyoda-Ku
Tokyo

C Itoh Ltd
5-1 Kita-Aoyama 2-chome
Minato-Ku
Tokyo

Meida-Ya Co. Ltd
2-8 Kyobashi 2-chome
Chuo-Ku
Tokyo 104

Selected manufacturers

Sembikiya
Nihonbashi
Tokyo

Snow Brand Milk Products Co.
13 Honshio-cho
Shinjuku-Ku
Tokyo 160

Suntory Ltd
1-40 Dojima 2-chome
PO Box 424
Osaka

Kirin Brewery
2-26-1 Jingmae
Shibuya-Ku
Tokyo 150

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