Reference Table C-4 Quantity, Amount and Average Price of Beef Exported by Specified Countries

(1,000 MT; US$ million; cent/kg)

	1965			1966			1967			1968		
	Quantity	Amount	Average price	Quantity	Amount	Average price	Quantity	Amount	Average price	Quantity	Amount	Average price
Australia	321	224	69.8	278	219	78.8	262	222	84.7	256	222	86.7
Argentina	349	228	65.3	401	242	60.3	380	203	53.4	255	150	58.8
Ireland	55	43	78.2	70	55	78.6	148	111	75.0	117	87	74.4
Germany, FR	5	6	120.0	4	6	150.0	15	21	140.0	30	41	136.7
France	65	53	81.5	88	66	75.0	91	72	79.1	155	121	78.1
New Zealand	121	80	66.1	101	76	75.2	106	87	82.1	129	100	77.5

	1969			1970			1971			1972		
Australia	256	236	92.2	328	327	99.7	339	339	100.0	402	457	113.7
Argentina	405	235	58.0	352	240	68.2	231	235	101.7	385	474	123.1
Ireland	122	97	79.5	140	119	85.0	148	144	97.3	129	153	118.6
Germany, FR	46	63	137.0	55	76	138.2	55	86	156.4	46	95	206.5
France	125	103	82.4	114	99	86.8	143	144	100.7	123	184	149.6
New Zealand	133	122	91.7	178	173	97.2	181	191	105.5	186	221	118.8

	1973			1974			1975			1976		
Australia	583	849	145.6	493	938	190.3	418	443	106.0	549	615	112.0
Argentina	288	518	179.9	106	195	184.0	79	106	134.2	227	224	98.7
Ireland	131	213	162.6	199	319	160.3	270	447	165.6	180	318	176.7
Germany, FR	117	165	141.0	138	234	169.6	138	348	252.2	141	331	234.8
France	135	233	172.6	252	356	141.3	292	461	157.9	275	471	171.3
New Zealand	203	298	146.8	183	336	183.6	192	200	104.2	228	256	112.3

	1977			1978			1979			1980		
Australia	633	712	112.5	755	932	123.4	833	1,554	186.6	580	1,467	252.9
Argentina	278	323	116.2	340	406	119.4	338	698	206.5	204	526	257.8
Ireland	262	524	200.0	262	625	238.5	255	691	271.0	344	961	279.4
Germany, FR	185	457	247.0	211	580	274.9	309	794	257.0	336	906	269.6
France	216	435	201.4	186	478	257.0	209	608	290.9	290	751	259.0
New Zealand	261	302	115.7	226	314	138.9	245	513	209.4	216	511	236.6

Source: FAO, Trade Yearbook

Reference Table C-5 Quantity, Amount and Average Price of Beef Imported by Specified Countries

(1,000 MT; US$ million; cent/kg)

	1965			1966			1967			1968		
	Quantity	Amount	Average price	Quantity	Amount	Average price	Quantity	Amount	Average price	Quantity	Amount	Average price
USA	265	195	74.6	346	299	86.4	382	345	90.3	430	399	92.8
Italy	252	252	100.0	278	257	92.4	324	294	90.7	250	252	100.8
UK	295	223	75.6	290	215	74.1	273	185	67.8	261	179	68.6
USSR												
France	59	61	103.4	37	38	102.7	35	39	114.3	33	41	124.2
Germany, FR	147	112	76.2	126	92	75.4	134	99	73.9	172	142	82.6

	1969			1970			1971			1972		
USA	470	483	102.8	527	583	110.6	518	606	117.0	602	757	125.7
Italy	261	261	100.0	290	317	109.3	367	451	122.9	334	529	158.4
UK	345	239	69.3	265	225	84.9	253	257	101.6	278	355	127.7
USSR				82	45	54.9	116	58	50.0	40	26	65.0
France	74	91	123.0	72	93	129.2	68	97	142.6	153	237	154.9
Germany, FR	193	163	84.5	185	185	100.0	179	210	117.3	258	379	146.9

	1973			1974			1975			1976		
USA	612	1,046	170.9	490	746	152.2	557	591	106.1	607	788	129.8
Italy	433	915	211.3	297	643	216.5	320	844	263.8	293	701	239.2
UK	270	480	177.8	249	395	158.6	196	307	156.6	214	330	154.2
USSR	46	33	71.7	396	366	92.4	406	374	92.1	226	217	96.0
France	168	337	200.6	117	234	200.0	160	370	231.3	156	369	236.5
Germany, FR	237	440	185.7	176	311	176.7	197	398	202.0	211	417	197.6

	1977			1978			1979			1980		
USA	553	697	126.0	673	1,150	170.9	715	1,762	246.4	642	1,564	243.6
Italy	323	822	254.5	322	971	301.6	341	1,150	337.2	350	1,330	380.0
UK	258	441	170.9	273	519	190.1	272	681	250.4	233	682	292.7
USSR	438	478	109.1	84	119	141.7	386	549	142.2	333	590	177.2
France	206	574	278.6	261	842	322.6	236	821	347.9	253	899	355.3
Germany, FR	214	488	228.0	200	553	276.5	211	679	321.8	200	671	335.5

Source: FAO, Trade Yearbook

D. INTERNATIONAL TRADE

I. Trade Volume of Beef

1. World Volume of Beef Exports

This section deals with the historical trends in the world trade of beef. In the period 1965-1970, high economic growth continued in the main importing countries such as the United States, Europe and Japan, demand for beef increased at relatively stable prices and import and export volumes rose.

According to FAO statistics (Reference Table B-12), the export volume of beef in the world increased from 1.45 million tons (cwe) in 1965 to 2.088 million tons in 1970 and 2.549 million tons in 1973. With the emergence of the first oil crisis in 1973, world volume of beef exports decreased to 2.269 million tons in 1974 and 2.355 million tons in 1975. In 1976, the export volume returned to the 1973 level, rising to 3.378 million tons in 1980.

Recent trade flow patterns in the beef market will be analysed in Item 4 of this section, but regional trends of beef exports will be described now.

The EC countries export and import considerable quantities of beef, but there was a sharp rise in beef exports from 175,000 tons in 1965 to 1.114 million tons (including trade within the EC) in 1975 — by a factor of four during the 10 years. The figure decreased slightly to 975,000 tons in 1976, but started to increase again in the following year, reaching 1.586 million tons in 1980, being supported by export subsidies.

Exports from Australia remained at virtually the same level (321,000 tons in 1965; 328,000 tons in 1970), but increased by 78% between 1970 and 1973, when the total reached 583,000 tons. However, Australian exports declined in 1974 and 1975 due to the effects of the first oil crisis. They started to increase again in 1976, reaching a peak of 835,000 tons in 1979, but decreased slightly the following year.

Beef exports from New Zealand increased by 47% from 121,000 tons in 1965 to 178,000 tons in 1970, and a further 14% to 203,000 tons in 1973. However, the beef exports declined in the next two years for the same reasons stated in the previous paragraph. Exports started to increase in 1976, and reached a record high of 245,000 tons in 1979, then declined slightly in 1980.

In the South American region, Argentina is the largest exporting country, followed by Brazil and Uruguay. Although beef exports from Argentina increased slightly from 349,000 tons in 1965 to 352,000 tons in 1970, there was a considerable decline, similar to other exporting countries, in 1974 and 1975, for the reasons mentioned previously. Thereafter, however, exports recovered slightly.

2. Net Importers of Beef in the World

The net beef importing countries are EC nations, the United States, Japan, the USSR, the Republic of Korea, North African countries, and the Middle East countries, i.e., developed countries, oil producing countries and newly industrializing countries with relatively high incomes.

The United States had been a net importing country since the 1960s, and the net import volume increased further in the 1970s. In the United States net imports were 249,000 tons in 1965, 518,000 tons in 1970, 579,000 tons in 1975, and 578,000 tons in 1980.

Because beef imports of the United States were controlled by the Meat Import Law, a radical increase did not occur. Since the system to allow imports up to a certain ratio against domestic consumption was adopted from 1965 to 1979, imports took place at the rate of 7 - 9% of domestic production.

The EC was a net importer from 1965 to 1974. It was the largest importer, with net imports of 525,000 tons in 1965, more than double that of the United States, but through common agricultural policy adopted in 1960s, self-sufficiency increased, and in 1975-1976 the EC became a net exporter, with exports of 73,000 tons in 1979 and 411,000 tons in 1980.

The total net import of beef in the developed countries was 306,000 tons in 1965 and 404,000 tons in 1970, but from 1974, they became a net exporting region and increased exports from 147,000 tons in 1975 to 498,000 tons in 1980.

The USSR was a net exporter until 1969, but after 1970 became a net importer and maintained its import volume, although with some fluctuations, and became the largest net importer next to the United States by importing 325,000 tons in 1980 (Reference Table B-16 and Table D-1).

3. The Ratio of Beef Export to Beef Production by Country

The share of beef exports in world production showed a slight

increasing tendency with 5.2% in 1970, 5.3% in 1975 and 7.5% in 1980. The developed countries had a higher percentage than the world average.

Among the main exporting countries, Australia's export ratio rose from 27% in 1975 to 41.4% in 1979. New Zealand has a higher ratio than Australia, because its domestic consumption is small compared with production. In 1976 the ratio dropped to 36.3% because of sluggish exports, but increased to 48.9% in 1979 and 45.5% in 1980.

The export ratio in Argentina was 13.5% in 1970 and 17.5% in 1972, but after that it continued to decrease, and was 7.1% in 1980. Though the export of processed products of Brazil is large, the export of raw beef is small and the beef export ratio continued to decrease from 4.5% - 7.4% in 1970-73 to be less than 1% in 1974 and later years.

The export ratio in the United States is very low, about 0.1% (Reference Table B-13).

4. Flow of International Beef Trade

International beef trade can be roughly divided into (1) the flow of fresh, chilled and frozen beef, and (2) the flow of processed beef. With regard to the first flow, it can further be divided into trade within regions free from foot-and-mouth disease and trade within regions affected by foot-and-mouth disease. The second flow is that in which the major exporters are South American countries and the major importers are North American and the EC countries. The existence of foot-and-mouth disease imposes a sanitary constraint on the beef trade. Exports from contaminated countries to clean countries are limited to beef which is heat-processed (boiled beef) under prescribed conditions so as to be virus-free from foot-and-mouth disease.

The exporting countries in the regions free from foot-and-mouth disease are Australia, New Zealand, Canada, Mexico, Guatemala, Costa Rica and Nicaragua, which mainly export to the United States, and "clean" countries in Europe such as Ireland and Iceland. The United States and Japan do not permit imports from such EC countries as the UK, France and the Netherlands.

The United States, the largest importer, permits imports from about ten countries, but Australia and New Zealand have a dominant share. They are major world traders in fresh, chilled and frozen beef.

Beef exports from the region free of foot-and-mouth disease were 1.31 million tons in 1980. By country, Australia is the largest exporter at 580,000 tons. The export ratio in the clean countries is less than 3%.

Table D-1 Beef Production and Trade (1980)

(1,000 tons, %)

	Production		Export		Import	
			Share			
Total	45,350	(100)	2,340	(100)	2,120	(100)
			Clean region			
			1,310	(56)		
			Foot-and-mouth disease region			
			1,030	(44)		
Consisting of:						
USA	10,000	(22)	60	(3)	640	(30)
EC	7,040	(16)	410	(18)	170	(8)
Australia	1,560	(3)	580	(25)	-	(-)
Argentina	2,920	(6)	200	(9)	-	(-)
USSR	6,700	(15)	10	(-)	330	(16)
Japan	420	(1)	-	(-)	120	(6)

Notes: 1) The export and import figures are not in agreement because of time lag.
2) Since statistical standards differ from country to country, the above data consist of both carcass data and cut meat data.

Source: FAO, Production Yearbook, Trade Yearbook, and others

Table D-2 Volume of Beef Export from Three South American Countries

(1,000 MT)

	1971	1976	1981
Argentina	308	308	327
	169	219	157
	477	527	484
Brazil	100	17	61
	65	140	245
	165	157	306
Uruguay	89	182	164
	-	13	6
	89	195	170
Total	497	507	552
	234	372	408
	731	879	960

Note : Upper: Carcasses and cuts; Middle: Processed products; Lower: Total

Source: GIRA

Beef in the foot-and-mouth disease region flows from Argentina, Uruguay and Brazil to European countries, the USSR, and the Middle East countries; between European countries, and from Europe to North Africa.

Total exports from the foot-and-mouth disease countries are 1.03 million tons in 1980, and exports include fresh, chilled and frozen beef and processed beef in equal proportion.

The beef importing countries are developed countries, the USSR and the oil producing countries, and trade is small in the developing countries. The exporting countries are Australia (the largest exporter), New Zealand, Argentina, Brazil, those in the EC, and East European countries. The former three countries have a big share in international trade. The past flow of international trade of beef was mainly into the EC and the United States, but now the United States and Japan form the largest import region as net import countries. The EC both exports and imports, but is a net exporting region, having the third largest export volume, next to Australia and Argentina.

World beef trade in 1982 is shown statistically in Table D-3.

In terms of exports, Australia exports, out of a total of 656,000 tons, 380,000 tons to the United States, 130,000 tons to Japan, 25,000 tons to the Republic of Korea, 25,000 tons to Canada, and 480,000 tons to these main countries in the pan-pacific area. Exports from Australia to Europe are only 10,000 tons.

New Zealand has a similar export structure to that of Australia, but its dependence on the United States is higher; in 1982 New Zealand exported 254,000 tons (80%) to the United States out of total exports of 330,000 tons. New Zealand exported 33,000 tons to Canada and 12,000 tons to Japan.

The United States is the largest importer of beef in the world, but recently its export of high quality beef is increasing. Its total exports in 1982 were 157,000 tons, out of which 65,000 tons (40.8%) was exported to Japan, the largest customer. Other exports were to Canada (55,000 tons) and Central and South American countries (20,000 tons). Its exports to Europe were only 3,000 tons.

Canada exports 128,000 tons, out of which 120,000 tons goes to the United States.

Beef exports from the EC (10 countries) is 596,000 tons, of which 291,000 tons (48.8%) goes to North African countries and Middle East countries. Other exports are 104,000 tons to East European countries and 80,000 tons to the USSR. In addition to the above main destinations, 35,000 tons are exported to West African

Table D-3 Beef International Trade Flow, 1982 (Preliminary)

(1,000 ton, cwe)

Exporters \ Importers	EC-10	South Europe	Other Western Europe	USSR - Mongolia	Eastern Europe	USA	Canada	Central America - Caribbean Venezuela	Brazil	Argentina	Other South America	North Africa & Middle East	West Africa	Japan	Korea, Rep. of	Other Far East - Hong Kong	Others	Total
Australia	13		2	-		528	33	16				28		132	85	62	7	906
	4		-	-		-	2	-				-		1	-	12	2	21
	17		2	-		528	35	16				28		133	85	74	9	927
New Zealand	7	1	-			243	27	5				7		5		10	6	310
	-	-				-	-	-				-		-		-	-	-
	7	1				243	27	5				7		5		10	6	310
USA	2						9	16				8	1	72	-	7	1	116
	-						1	1				1	-	-	-	-	-	4
	2						10	17				9	1	72	-	7	1	120
Canada	1					88								2			-	91
	-					-								-			-	-
	1					88								2			-	91
Central America						107											3	110
						-											-	-
						107											3	110
Argentina	69	4	6	101	-	-					21	146	8				6	361
	51	1	1	-	1	84					18	-	-				5	161
	120	5	7	101	1	84					39	146	8				11	522
Uruguay	29	2	8	4	3	-			16	18	15	60	1				2	158
	2	-	-	-	-	4			-	-	-	-	-				-	6
	31	2	8	4	3	4			16	18	15	60	1				2	164
Brazil	54	8	4			-	-	-				51	2				6	125
	136	-	-			49	7	20				30	-				12	254
	190	8	4			49	7	20				81	2				18	379
EC-10		14	3	78	73	5	5	5				143	31			-	7	364
		4	3	-	2	2	-	2				24	13			1	10	61
		18	6	78	75	7	5	7				167	44			1	17	425

(to be cont'd.)

Table D-3 (cont'd.)

(1,000 ton, cwe)

Exporters \ Importers	EC-10	South Europe	Other Western Europe	USSR - Mongolia	Eastern Europe	USA	Canada	Central America - Caribbean Venezuela	Brazil	Argentina	Other South America	North Africa & Middle East	West Africa	Japan	Korea, Rep. of	Other Far East - Hong Kong	Others	Total
Other Western Europe	38			16	4							-	5				2	65
	1			-	-							-	-				-	1
	39			16	4							-	5				2	66
Eastern Europe	33		2	80								35						150
	25		1	15								6						46
	58		3	95								41						196
South Africa	17		1									8	30					56
	7		-									-	3					10
	24		1									8	33					66
India												48						48
												-						-
												48						48
Others	-							5	-			10				5		20
	7							-	-			5				-		12
	7							5	-			15				5		32
Total	262	29	26	279	80	971	74	47	16	18	36	544	78	211	85	84	40	2,880
	234	5	5	15	3	139	10	23	-	-	18	65	16	1	-	13	29	576
	496	34	31	294	83	1,110	84	70	16	18	54	609	84	212	85	97	69	3,456

Note : Upper: Carcass & cuts; Middle: Processed products; Lower: Total

Source: GIRA

countries, 22,000 tons to other West European countries and to South Europe. Geographical conditions and trade relationships determine the destinations.

Exports from West European countries outside the EC are small in scale; in 1982 the figure stood at 78,000 tons.

In the same year Argentina exported 460,000 tons and was the third largest exporter next to Australia and the EC. Exports to the EC were 180,000 tons, 96,000 to the USSR, and 63,000 tons to North Africa and the Middle East.

In 1982 Brazil exported the same amount as Argentina, but its markets are more diversified; 145,000 tons to the EC, 91,000 tons to North Africa and the Middle East, 70,000 tons to the United States, and some also to Central and South American countries and Asia.

Among the importers of beef the United States is the largest, accounting for about 29% of world beef imports in 1982. The main suppliers are Australia, 380,000 tons, New Zealand 254,000 tons, Central America 155,000 tons, and Canada 120,000 tons; imports from these countries total 909,000 tons, 86% of the total amount imported by the United States. Beef imports from these countries mainly consist of fresh, chilled and frozen meats. In addition, the United States imported 62,000 tons of heat treated beef from Argentina and 70,000 tons from Brazil.

The EC is both an exporter and an importer of beef. Imports from outside the EC in 1982 were 562,000 tons, of which 180,000 tons came from Argentina, 145,000 tons from Brazil, 95,000 tons from East European countries, 52,000 tons from other West European countries, and 35,000 tons from South Africa. Imports from Australia, New Zealand and the United States are very small.

On the other hand, the countries of North Africa and the Middle East have recently become a large import market, currently importing 671,000 tons of beef —— 291,000 tons from the EC, 91,000 tons from Brazil, 63,000 tons from Argentina, and 80,000 tons from Eastern Europe. This region has now become the principal market for the major beef exporting countries other than Australia and New Zealand.

Total imports in the USSR were 330,000 tons, of which 130,000 tons came from East European countries, 96,000 tons from Argentina and 80,000 tons from the EC.

II. The Beef Export and Import System

1. Outline of the Beef Export and Import Systems

The international beef trade has a variety of export and import systems according to the different countries. Among importers, the United States, which is the largest beef importer in the world, conducts an import quota system under the Meat Import Law, and Canada also restricts imports in a similar manner.

The EC countries endeavor to stabilize beef demand and supply and prices, and to secure the income of producers under the import surcharge system, which acts as a barrier against the import of live cattle and beef. In order to ease this situation, a certain quantity of imports is permitted on the basis of quotas under various special agreements.

As regards exporters, on the other hand, the EC countries export beef at a price half that of the domestic beef price by providing export subsidies. Since beef consumption is showing a sluggish trend reflecting the recent recession, a tendency toward oversupply can be seen in the West European countries, many of which have been striving to develop export outlets for the adjustment of demand and supply.

In Australia, the Meat and Livestock Corporation is the licensing authority over exporting companies, but otherwise enjoys neither subsidies nor price supports. New Zealand has adopted a minimum export price system linked with the domestic price, under which the New Zealand Meat Board has monopololistic control over meat exports. The main purpose of this is to secure the income of the producers. The United States has been showing great interest in the export of high-quality beef under the feedlot system, and is actively making efforts to ease the barriers in importing countries.

2. The Beef Export and Import Systems in the United States

2.1 Exports

Exports of the United States are only about 1% of domestic production, but the potential export capacity, based on grain-fattened cattle produced by the feedlot system centered in the West and Midwest, is considered to be high. Beef exports were not of interest to the beef industry until the 1970s, but recently the

desire to export was suddenly heightened by sluggish domestic demand and increased production capacity. Beef for export mainly consists of high quality beef produced by grain-fattening, a type of beef which is in a state of oversupply in the United States; it is also important to develop overseas markets from the viewpoint of stabilizing prices.

The main activity of export promotion of beef consists of expanding markets by negotiation between two or more countries, and reduction or elimination of import duties and import barriers. A lesser activity is the opening of offices in the main export markets by the beef industry for promoting exports.

2.2 Imports

2.2.1 Meat Import Law of 1964

The United States is the largest importer of beef in the world. Its imported beef consists mainly of low quality beef to be used for processing, e.g. as hamburger.

Since low quality beef in the United States is in short supply because of the decreased number of dairy cattle and increased raising of beef cattle by the feedlot system, imports of this class of beef are required. Imports also serve to stabilize price.

The import of beef into the United States was unrestricted until 1963, but since 1964 the import of beef has been strictly controlled under the Meat Import Law. The import system was based on the principle of maintaining the import share of domestic consumption on the basis of past imports, to establish the basic import quota and to make adjustments in accordance with subsequent increases in domestic production. It was provided that a certain percentage of the domestic market should be open to the overseas suppliers, but when imports exceed the import quota (10%) imports are to be controlled.

The President is authorized to loosen or tighten import controls depending on the supply and demand situation and price trends within the country. The following describes the main points of the import law, including the method of calculation of the import quota.

Meat Affected:

Fresh, chilled and frozen beef (Customs Tariff Schedules of American classification 106.10) sheep and goat meat (except lamb).

Method of calculating import quota:

$$725.4 \text{ million pounds } (329{,}332 \text{ tons}) \times \frac{\text{Average domestic production in past 3 years}}{\text{Average domestic production in 1959-1963}}$$

Calculating method of trigger level:

Trigger level is the point where import controls are invoked, and can be obtained by multiplying the import quota by 1.10. That is, when the actual annual total import volume is estimated to exceed the import quota by 10%, the import control is invoked by presidential proclamation.

Estimation of import volume:

The actual annual (January-December) import volume is estimated by quarter.

Quota by country:

The Agriculture Secretary must allocate the import quota decided by the presidential proclamation to the beef supplying countries in accordance with their shares in supplying beef to the U.S. market in a representative period. The President can either cancel the proclamation or increase or decrease the import quota as required.

The President's powers regarding the import quota are:

- o To suspend the import quota if required from the viewpoint of national security.
- o To increase the import quota when it is judged that the demand cannot be met at a reasonable price.
- o To increase or decrease the import quota when it is necessary to execute the policy based on the trade agreement.

The Meat Import Law (1964) was in force until 1978, but because it is based on share division of the domestic market, it caused a problem in that as domestic production increases, the import of beef also increased proportionally, and when the domestic market became smaller, the beef market was made unstable by imports. The beef market became especially unstable after the oil crisis, and the import of beef increased while the price was low and the market deteriorated further.

As previously mentioned, under Meat Import Law of 1964 the import quota was distributed to beef supplying countries in proportion to their past shares of imports to the United States; in order to have them observe the import quotas, the United States Government negotiated with the exporting countries for voluntary

restrictions. Actually import quotas by country were imposed as required, but because the formal quota by country is contrary to the GATT, any imposition of the quota was not long-standing, and the import quota has been sometimes reduced or abolished when domestic prices have drastically fallen. It sometimes happened that an increased domestic price made it unnecessary to execute the import quota.

In the beef trade among the countries free of foot-and-mouth disease, beef imports in the United States continued to have a dominant share and a strong influence. One control measure is the Meat Import Law, and in that sense, beef trade in the disease-free regions can be said to have been led by the United States. The supplying countries have produced and exported beef in keeping with imports by the United States.

2.2.2 Meat Import Law of 1979

On December 31, 1978 some provisions of the Meat Import Law (1964) were revised to create the Meat Import Law (1979). From January 1979, imports were made on the basis of this law. The main changes to the original law are as follows:

- o Limitation of the President's powers on the import quota
- o Introduction of minimum import volume
- o Inclusion of processed meat
- o Correction of calculating method of quota
  Introduction of inverse proportion; i.e. to stabilize price and supply as a whole by decreasing the import quota when the domestic production increases, or increasing it in the opposite case. Alteration of the number of years and the type of beef to be used for the calculation.

Under the Meat Import Law (1964), import volume increased or decreased in proportion to the increase or decrease in the domestic production, but under the Meat Import Law (1979), the relation was inverted.

Calculating method of import quota:

$$\text{Annual import quota (546,400 tons)} \times \frac{\text{Average change in meat production in past 3 years}}{\text{Average domestic production of meat in 10 years from 1968 to 1977}}$$

$$\times \frac{\text{Moving average change of cow beef production per capita in past 5 years}}{\text{Moving average change of cow beef production per capita in past 2 years}}$$

The basic point is that the number of adult cow beef in the United States was assumed to correspond to imported beef, to arrive at a coefficient of adjustment of beef imports which represents the inverse of the increases or decreases in the production/consumption ratio of cow beef. The beef imported into the United States is considered low in quality compared with domestic beef, and the direct competitor of imported beef is considered to be beef produced from superannuated cattle. In order to reflect the extent of increase or decrease of domestic superannuated cattle on the quantity of imported beef, a system of inverse proportion was introduced to adjust imports and stabilize price.

The President is authorized to increase the import quota when the inverse proportion value exceeds 1.0, but when it is less than 1.0, he can suspend the import quota and increase the import only in the following cases:

- o Occurrence of national emergency
- o Shortage of meat supply caused by national disaster, epidemic or market disruption.

Market disruption includes strikes by meat processors, reduction of operation by producers, industrial strikes and other situations which may hinder meat distribution.

So far the exporting countries have been able to maintain exports at an appropriate level by keeping their beef production and exports in line with the cattle cycle or beef production cycle in the United States, but after the introduction of the inverse proportion system, they had to establish a system of beef production and export different from that in the United States. It is inevitable that the revised Meat Import Law should have a big effect on beef trade among the countries free from foot-and-mouth disease, partly because it takes a long time for the exporting countries to adjust their export system and partly because imports by the United States are large.

2.2.3 Cattle and beef tariffs

Import tariffs for beef (fresh, chilled and frozen) in the United States were revised from ¢3 per pound to ¢2 per pound in the Multilateral Trade Negotiation (Tokyo Round).

3. The Beef Export and Import Systems in Australia

Australia is the largest beef exporting country in the world.

Subsidy and price supporting policy for domestic beef production are almost nonexistent there, but the Federal Government is deeply committed to a disease preventive system to protect the beef industry from the invasion of virulent contagious diseases such as foot-and-mouth disease, and about a licensing system for exporting companies (to achieve smooth beef exports).

3.1 Exports

The Federal Government has the authority to make overall adjustments for foreign trade. Since there are almost no imports, this authority concentrates on exports.

Actually, the export of live cattle and beef is controlled by a semi-governmental corporation (Australia Meat and Livestock Corporation). It is necessary for exporters of beef and live cattle to obtain licenses from this corporation. The Corporation is funded by fees levied on the export of slaughtered and live cattle.

The Corporation can issue instructions and orders to exporters concerning standards of beef, grading, export destination, quantity and minimum price. The Corporation is also authorized to maintain the quality of domestic beef, to negotiate the freight, to fix the maximum freight rate, and to approve transportation agents. It is also authorized to export beef and live cattle on its own.

If the importing countries, such as the United States have import quantity controls, the Corporation is also authorized to carry out export controls in order to have exporters observe the import quantity limits and to promote smooth exports. Presently, however, the control is executed only on the export of high quality beef and buffalo meat to be shipped to the EC.

Beef for export must be processed at slaughter plants approved by the Australian Bureau of Animal Health. Export certificates are only issued for beef processed at facilities which meet the hygiene standards of Australia or of the importing countries. The Bureau is responsible for hygienics in domestic and international trade.

3.2 Imports

Import duties are generally low. Aside from conventional tariffs and tariffs fixed between two countries, a revenue duty of 2% (ad valorem) is levied.

Neither quantity control nor import surcharge is imposed on the import of beef or live cattle.

4. The Beef Export and Import Systems in the EC

The beef export and import systems in the EC are designed to protect beef producers within the EC and to effect smooth export of surplus production to outside markets. The export and import systems are closely connected to beef price support within the EC.

4.1 Imports

The import system for beef and cattle consists of tariff and import surcharges, special import agreements and imports on concessional conditions.

4.1.1 Common tariffs

A common tariff is imposed on all imports from outside the EC, except those of breeding stock. There are no duties on breeding stock. For other cattle, a common tariff of 16% and for beef (fresh and chilled), a common tariff of 20%, plus import surcharge is levied.

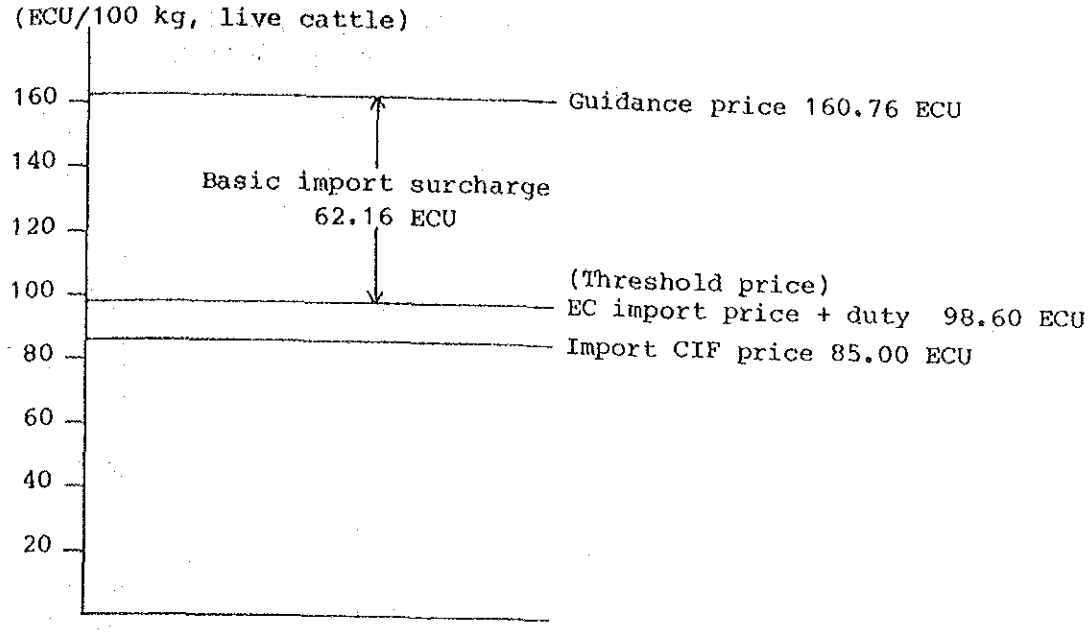
4.1.2 Import surcharge system

For the import of live cattle and beef, except under special circumstances, a common tariff and an import surcharge are levied. The import surcharge is levied on the following items:

Classification		Item
01.02	AII	Live cattle and calves except purebreds for breeding
02.01	AII	Fresh, chilled and frozen beef and veal
02.06	CIa	Salted, dried and smoked beef and veal
16.02	BIII b)1aa)	Prepared or processed beef and non-prepared veal

The provisions relevant for application of the import surcharge on live cattle and beef are appendices to regulation No. 805/1968, and the EC Commission calculates the value of the basic surcharge. The basic surcharge on beef is theoretically the difference between the EC guidance price and the so-called threshold price (import CIF price + tariffs + import costs). An actual example of calculation is shown in Fig. D-2.

Fig. D-2 Example of Calculation of the Basic Import Surcharge on Live Cattle (Week of June 30, 1980)



ECU: European Currency Unit

The details of calculation of the basic import surcharge are stipulated in Regulation No. 586/1977 (Final revision No. 882/1979).

The actual import surcharge is calculated and adjusted by using the basic surcharge increase/decrease coefficient, determined by the ratio of guidance price to market reference price (calculated for a representative market within the EC).

However, when the guidance price and market reference price are at the same level, the basic surcharge is collected directly (Fig. D-3). The relation between the basic surcharge increase/decrease coefficient and the actual representative market reference price coefficient within the EC is shown in Fig. D-4.

Fig. D-3 Price System of Cattle and Beef in the EC

— When the increase/decrease coefficient of the basic surcharge is 100 —

(Import surcharge actually applied = Basic surcharge x increase/decrease coefficient)

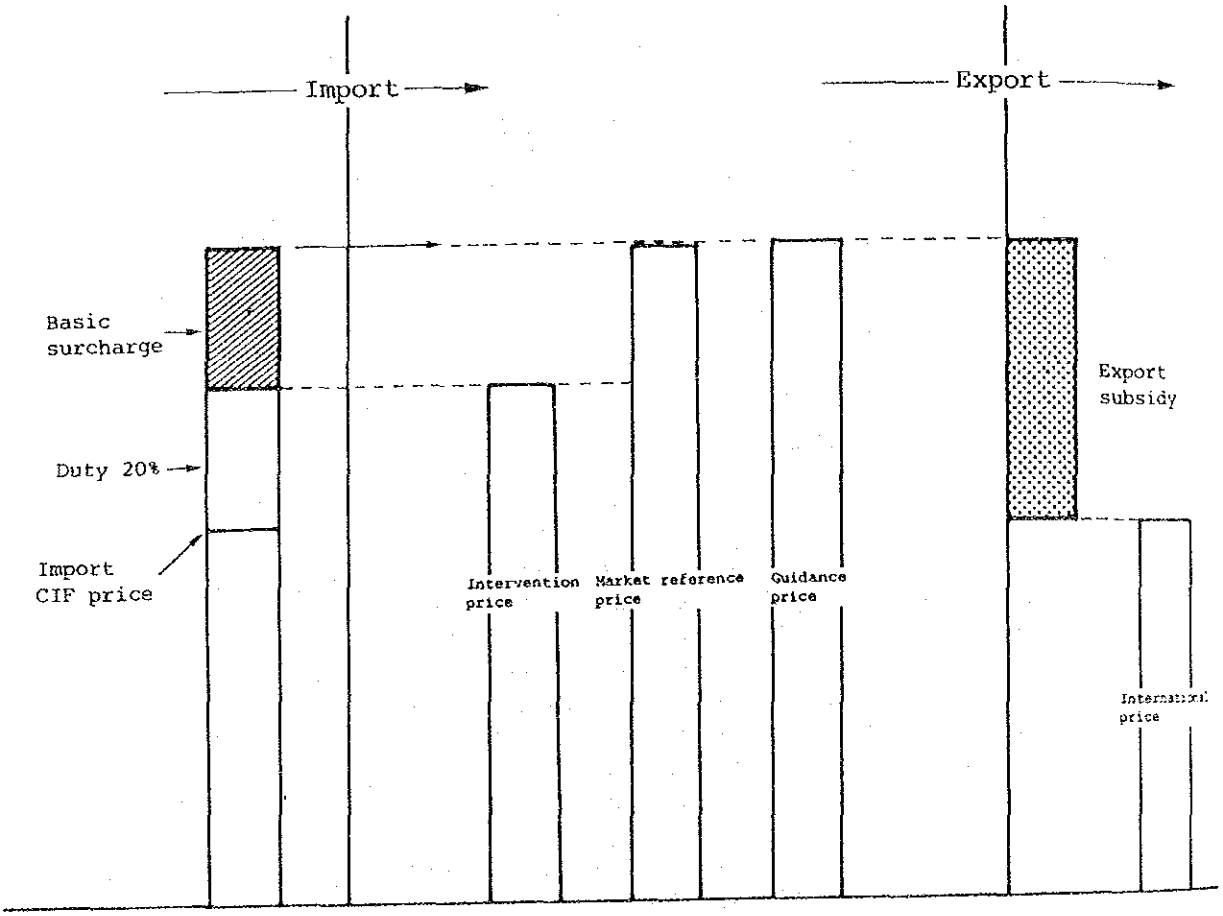


Fig. D-4 Relationship between Increase/Decrease Coefficient of Basic Surcharge of Beef in the EC and the Market Reference/Guidance Price Coefficient

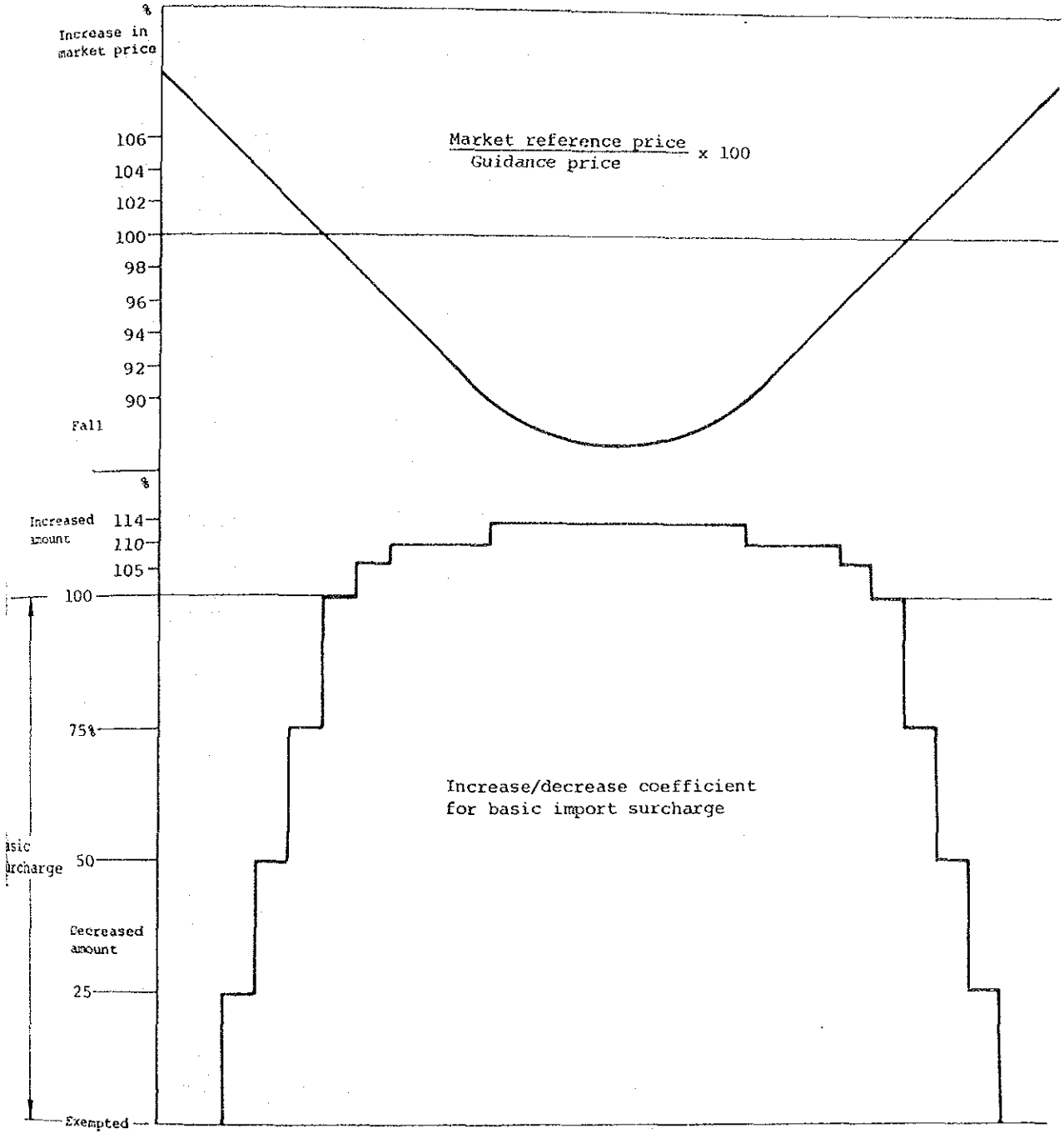


Table D-4 Increase/Decrease Coefficient of Basic Surcharge

	Reference price / Guidance price ratio	Increase/decrease coefficient of basic surcharge	
	%		
Rise of market price within EC	106	Surcharge exempted	Import surcharge decreased
↑	104 - 106	25	
↕	102 - 104	50	↑
↕	100 - 102	75	↕
↕	98 - 100	100	↕
↕	96 - 98	105	↕
↓	90 - 96	110	↓
Fall of market price within EC	Less than 90	114	Import surcharge increased
↕			
Support intervention			

4.1.3 Imports under concessions

The following imports are based on the GATT concessions:

a. Import of Alpine feeder cattle
No surcharge; 4% tariff; 5,000 head annual quota

b. Import of special mountain cattle breeds
No surcharge; 4% tariff; 38,000 head annual quota

c. Import of frozen beef
No surcharge; 20% tariff; 50,000 tons in 1980

d. Import of high-quality beef
No surcharge; 20% tariff; 21,000 tons in 1980

e. Import of buffalo beef
No surcharge; 20% tariff; 2,500 tons annual quota

4.1.4 Imports under special agreements

In additon to the imports mentioned above, the following are imports for which measures have been taken to ease or exempt surcharges and tariffs:

a. Imports within balance sheet framework

This includes frozen beef for processing, of which there are two categories:

i) System A
Cooked beef products containing more than 85% beef and jelly and more than 20% red meat —— no surcharge; 20% tariff

ii) System B
Those products which are not included in System A. The surcharge may be reduced (in 1980, 45% of the normal surcharge); 20% tariff

b. Import of feeder cattle

No surcharge; 6% tariff

c. Imports under the ACP Countries Agreement (Rome Agreement)

African, Caribbean and Pacific countries are covered under this Agreement. The surcharge is 10% usually; no tariff; approximately 30,000 tons in 1980.

d. Import of beef of young cattle with reduced surcharge into Yugoslavia

In the case of the ratio of the market reference price to the guidance price being less than 98%, the surcharge is reduced and the tariff is 20%.

4.2 Exports

It is difficult for EC beef to be directly exported because its price is higher than the world price. This requires subsidies to compensate for the difference between the domestic and overseas prices, in order that the price can be reduced to the level at which exports are possible. Disbursement of export subsidies (rebates) is permitted under the rule.

Export subsidies may vary in terms of the subsidy rate according to the destination. The subsidy rate is determined taking the following matters into consideration: The current situation and future conditions of the world market, the current situation and future conditions of the EC market, competitive conditions in third markets outside the EC, and political factors.

Reference Table D-1 Net Export or Import Volumes of Beef and Veal

(1,000 MT)

	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
Developed countries	+306	+409	+395	+328	+578	+404	+395	+656	+533	-107	-147	-67	-255	-173	-344	-498
North America	+216	+316	+370	+408	+486	+532	+512	+615	+616	+501	+581	+625	+530	+656	+678	+585
USA	+249	+337	+373	+422	+462	+518	+503	+582	+579	+468	+536	+570	+511	+621	+661	+578
Canada	-33	-22	-3	-13	+23	+14	+10	+33	+38	+33	+44	+55	+19	+35	+17	+7
EC	+522	+458	+380	+290	+462	+354	+360	+570	+575	+15	-164	-6	+26	+51	-73	-411
Other developed countries	-432	-365	-355	-370	-370	-482	-477	-529	-658	-623	-564	-686	-811	-880	-949	-672
Oceania	-443	-379	-369	-384	-388	-505	-519	-587	-785	-677	-609	-778	-895	-980	-1,079	-794
Australia	-321	-278	-263	-256	-256	-328	-339	-402	-583	-493	-417	-550	-634	-754	-834	-578
New Zealand	-121	-101	-106	-128	-132	-178	-181	-185	-203	-183	-192	-228	-261	-226	-245	-216
Japan	+11	+14	+14	+14	+18	+23	+42	+58	+127	+54	+45	+92	+84	+100	+130	+122
South America	-385	-422	-391	-294	-482	-449	-313	-540	-386	-72	-57	-216	-255	-196	-230	-145
Brazil	-36	-21	-12	-39	-78	-79	-83	-155	-98	+33	+19	+11	-5	+103	+108	+59
Argentina	-349	-401	-380	-255	-405	-352	-231	-385	-288	-105	-75	-227	-250	-299	-338	-204
Planned economy countries			-145	-99	-59	+44	+103	+2	-2	+368	+412	+225	+431	+38	+214	+332
USSR			-145	-99	-59	+44	+105	+3	-1	+369	+388	+218	+430	+30	+204	+325
China	-	-	-	-	-	-	-2	-1	-1	-1	+24	+7	+1	+8	+10	+7
Main regions total	-79	-13	-141	-65	+37	-1	+185	+118	+145	+189	+208	-58	-79	-331	-360	-311
Other regions	-24	+36	-7	-7	-57	+49	-78	-110	-74	-141	-92	+35	+218	+240	+165	+168
World total	-103	+23	-148	-72	-20	+48	+107	+8	+71	+48	+116	-23	+139	-91	-195	-143

Note: + ... Import > Export; - ... Export > Import

E. PROJECTIONS OF SUPPLY AND DEMAND

I. Method of Projection

Some factors effecting beef consumption are said to be religion, customs, climate, population, income level, etc.

Of all these factors, special attention will be paid to the relationship between population and GDP (Gross Domestic Product) and beef demand (consumption) in a long term projection (1990, 2000). Countries were classified into the following groups on the basis of annual beef consumption per capita.

Table E-1 Grouping by Beef Consumption per Capita

Group	Beef consumption per capita	Countries
G-1 (1st group)	More than 60 kg	Australia, New Zealand, Argentina (main exporting countries)
G-2 (2nd group)	30 - 60 kg	United States, Canada, EC countries
G-3 (3rd group)	10 - 30 kg	Brazil, USSR
G-4 (4th group)	Less than 10 kg	Other countries

Data are taken from FAO's Production Yearbook, and beef consumption is estimated using the following formula:

Consumption = Production + Imports - Exports

Using data for 1970-1980, the following four types of regression equations were estimated for each group:

Beef consumption = A_1 x population + B_1 ..... (1)
Beef consumption = A_2 x GDP + B_2 .....(2)
Beef consumption per capita = A_3 x GDP per capita + B_3 ..... (3)
Beef consumption per GDP = A_4 x population per GDP + B_4 ..... (4)

As a result, for groups G-2 and G-3, the most significant results were obtained using regression formula (4), which expresses beef consumption per GDP unit in terms of population per GDP unit; and for G-4, by regression formula (3) which expresses beef consumption per population unit in terms of GDP per population unit.

Group G-1, which consists of beef exporting countries, has already reached a very high beef consumption level. Therefore, the highest consumption (110 kg) observed in 1970-1980 was adopted for this group with the judgment that there will be not much opportunity for this group to increase beef consumption per capita greatly, and calculations were based on the assumption that this quantity will also be maintained in the future. Growth rates of GDP and population for each group after 1980 are shown in Table E-2 and Table E-3 respectively.

Table E-2 Estimated GDP Growth Rates in 1981-2000

(%)

Group	1981-1990	1991-2000
G-1	3.1	3.4
G-2	2.2	3.1
G-3	3.3	3.4
G-4	3.3	3.4
World	2.7	3.1

Source: The Study Team

Table E-3 Average Annual Growth Rates of Population in 1981-2000

(%)

Group	1981-2000
G-1	1.22
G-2	0.43
G-3	1.25
G-4	1.25
World	0.98

Source: The Study Team

II. Projection Results and Concludng Remarks

Beef consumption levels in 1990 and 2000 are projected for each group of countries by using the estimated formulae (3) and (4) mentioned in the previous section. The projected results are shown in Table E-4.

Table E-4 Projected Beef Consumption

(1,000 tons)

Group	1990	2000
G-1	5,610	6,050
G-2	21,735	24,368
G-3	12,192	14,558
G-4	19,495	27,869
World	59,032	72,845

Source: The Study Team

It is projected that beef consumption will increase from 44.987 million tons in 1980 to 59.032 million tons in 1990 (a 31.2% increase) and 72.845 million tons in 2000 (a 61.9% increase). In this connection FAO's scenario A in Agriculture: Toward 2000 [1] projected world beef consumption in 2000 to be 71.953 million tons which is very similar to the projected figures of the Study Team. The Ministry of Agriculture, Forestry and Fisheries in Japan also attempted to project future world beef demand and production in 1981. According to their projections, beef demand in 2000 will be 79 million tons, while beef production in 2000 is projected to be 73 million tons. These projection results are quite similar to our projections of beef consumption in 2000.

Future beef imports by country, the projections of which were not made by this Study, were aggregated into the four groups of countries used in this survey, by using FAO's scenario A estimation for 2000. Thus, the imports of G-2 were estimated to be 1.62 million tons in 2000, G-3 to be 1.00 million tons and G-4 to be 3.96 million tons, the total being 6.58 million tons in 2000.

1) For details of scenario A in FAO's projection, refer to the Volume I, Summary and Conclusion, in this Study.

Therefore, if beef consumption increases as projected mainly in the countries in which per capita consumption of beef at present is below 10 kg (G-4 countries), there seems likely to be significant changes in the future international trade of beef.

Taking these facts into account, and if Brazil can succeed in realizing stable production at low costs by utilizing its vast grasslands as well as eliminating foot-and-mouth disease by implementing effective measures, it is possible that Brazil can secure a considerably more important position in the world beef market.

[8] TROPICAL FRUITS

[8] TROPICAL FRUITS

CONTENTS

[8-1] BANANA

A. OUTLINE

I. Species and Uses

Although the banana is a tropical crop, today it is consumed all over the world. About half the bananas produced are heated or cooked as the staple food or as a vegetable within producing countries. This variety of banana, which is called the plantain, is not eaten as fruit, and its trade volume in the world market is very small.

The bananas which will be considered in this Part are those which are consumed as raw fruit. Bananas of this kind are of the following six varieties: Gros Michel, Lacatan, Cavendish, Giant-Cavendish, Dwarf-Cavendish and Valery.

Of these, Gros Michel and the three types of Cavendish are traded in large volume. The Cavendish are very sweet, while the Gros Michel has a less strong taste than the Cavendish, is almost straight, and has the advantage of being able to withstand a little careless handling without damage.

Among fruit, bananas have very high nutritive value. Since they contain a large amount of sugar without acid, they are easily digestible and so very suitable in the diet of the elderly and as baby food.

Although bananas are usually eaten without being cooked, processed banana foods have recently appeared on the market. The main examples would be banana puree, banana chips and dehydrated bananas. In addition to these, there is banana confectionery, crystallized bananas (banana and sugar crystals), banana jam and other processed banana food. Some bananas are also processed for use in alcohol and vinegar.

II. Land Suitable for Cultivation

The banana producing zone is concentrated in the tropics, which stretch from lat. 30°S to lat. 30°N (shown in Fig. A-1). Bananas require high temperatures and constant rainfall throughout the year for growing. Suitable temperature are 60-100°F (15.6-37.8°C) [1] and the optimal temperature is usually said to be 85°F (29.4°C).

The higher the temperature is, the shorter the growing period and vice versa. Bananas can be harvested eight months after germination in very hot climates, but this growing period is 17 - 20 months in the Canary Islands, which are located on the northern boundary of the banana cultivation zone. Bananas require high temperatures especially in the harvesting period.

Although irrigation can compensate for shortage of rain, the minimum required rainfall is 1,270mm annually, and the average rainfall in main producing areas is more than 2,540mm. Conversely, the producing areas with too much rain need well-equipped drainage systems.

Since the main stem of the banana has poor resistance to strong wind, it is susceptible to wind damage by, for example, typhoon and hurricane, and therefore, areas which are free from such danger are suitable for cultivation.

The soil should be well drained and neutral (neither acidic nor alkaline) and soil which is aerated and osmotic is suitable for planting.

Typical blights that affect banana are Panama disease and sigatoka. The former is caused by bacteria and no effective prevention has yet been discovered. However, three species - Giant-Cavendish, Valery and Lacatan - are immune to this disease. Regarding sigatoka, which causes black spots on leaves, chemical spraying has been discovered to be a successful method of prevention.

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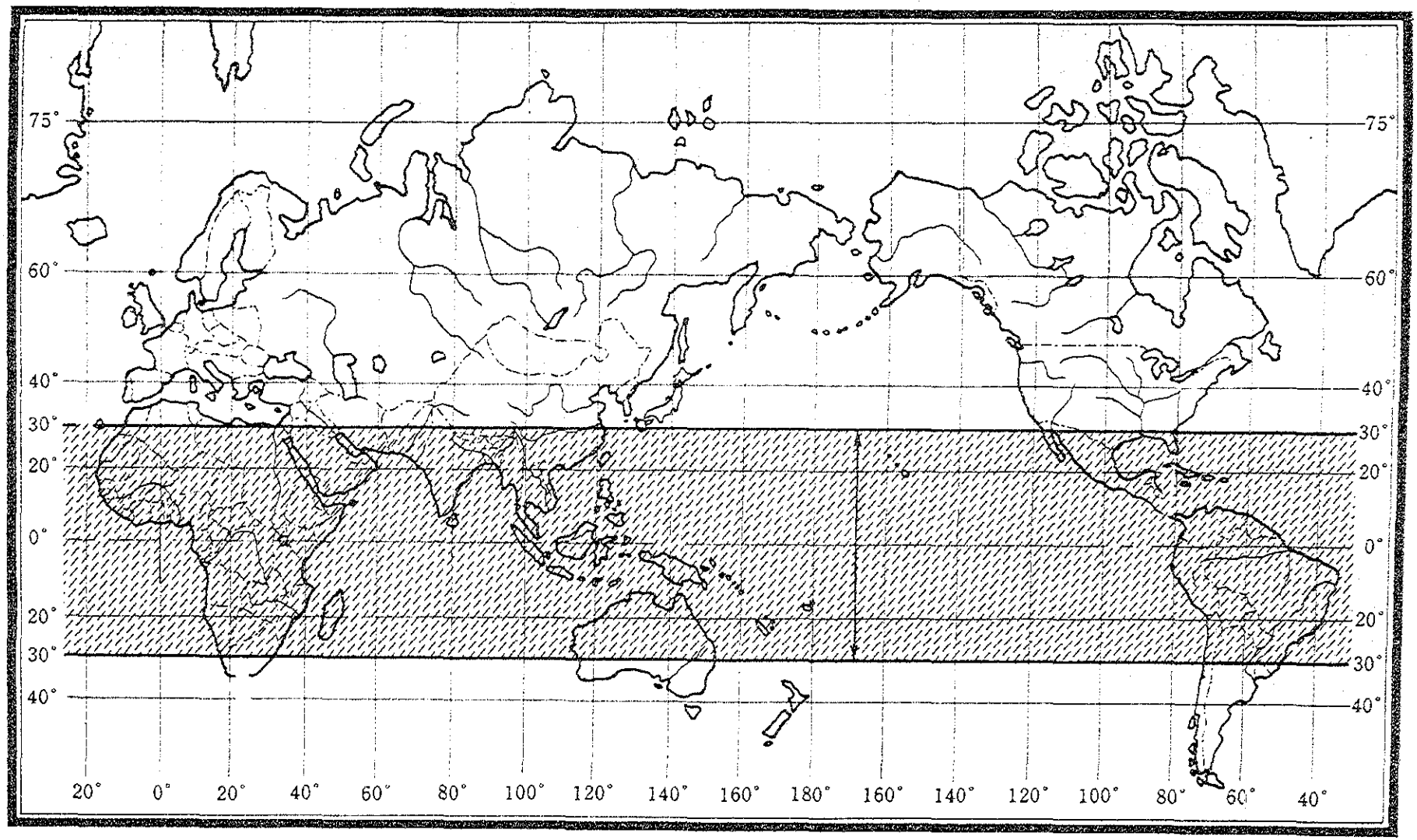
1) Since bananas are sensitive to temperature, the Fahrenheit measurement is used because it has smaller divisions than the centigrade.

Fig. A-1 Banana Producing Areas



B. PRODUCTION AND EXPORT OF BANANAS TODAY

I. World Production

The available statistics concerning banana production are inadequate because some countries include plantains in their figures, whereas others do not. In addition, though a considerable amount of bananas perish during shipment and are disposed of before reaching the distributor, such quantities are included in output statistics in some countries but not others.

It was found that figures such as cultivated area and crop quantities in FAO statistics are not consistent between the pre-1969 period and the post-1970 period, and consequently, the statistics after 1970 will be used here (see Table B-1).

Table B-1 Area of the World under Cultivation and Harvest

	Area of the world under cultivation (1,000 ha)	Harvest		Unit yield (kg/ha)
		(1,000 tons)	Change to previous year (%)	
1970	3,184	30,832	-	9,683
1971	3,176	32,244	4.6	10,152
1972	3,190	32,298	0.2	10,125
1973	3,277	32,508	0.7	9,920
1974	3,202	33,181	2.1	10,363
1975	3,204	32,890	-0.9	10,265
1976	3,224	35,186	7.0	10,914
1977	3,297	36,792	4.6	11,159
1978	3,387	37,544	2.0	11,095
1979	3,403	38,402	2.3	11,285
1980	3,458	39,718	2.6	11,486
1981	3,538	39,871	0.4	11,269

Source: FAO

The area under banana cultivation in the world increased from about 3.2 million ha in 1970 to 3.5 million ha in 1981 — at an annual average rate of 1%. Production in the same period increased from 30 million tons to about 40 million tons at an annual rate of 2.4%. This

indicates that unit yield increased, with the harvest per ha increasing from 9,700 kg in 1970 to 11,000 kg in 1981. The unit yield after 1977 has tended to level off.

Three reasons may be cited:

a. The rise in the prices of agricultural chemicals and fertilizers owing to the oil crises possibly led to reduction in their use.

b. The rise in transportation costs owing to the oil crises caused demand to fall in the main consuming countries.

c. Infertility of the soil in banana plantations resulting from continuous cultivation naturally lowered the productivity.

More than 80% of the total harvest is consumed within the producing countries, with the balance being exported. It is the exports of bananas that will be considered in this report.

II. Current Export Situation

The total of bananas exported in the world increased from 6 million tons in 1970 to 7 million tons in 1981 (Table B-2) —— the annual average rate of increase being 1.5%. Behind this increase, however, is the situation that almost all of the banana importing countries are developed countries, and the banana consumption per capita in such countries has reached the ceiling level. However, this figure exceeds the average rate of increase in population in the developed countries —— 0.7% —— and thus, banana consumption is increasing, though only slightly.

More than 90% of world banana exports come from sixteen countries (as shown in Table B-2). Let us briefly look at trends in exports from these countries in terms of region.

Five countries of Central America are responsible for the bulk of world banana exports. They maintained their share of about 40% throughout the 1970s. Three South American countries - Ecuador, Colombia and Brazil —— are, as a group, the second biggest exporters of bananas. Their share of the world trade is about 30%. The whole of Central and South America including the Caribbean countries (whose share fell from 6% to 4%) account for three-quarters of the world banana trade.

Exports have recently expanded from the Philippines and other Asian countries. Total banana exports of the Philippines and Taiwan increased from 300,000 tons in 1970 to 1 million tons in 1980, and the

Table B-2 Banana Exports (16 main countries)

(1,000 tons, %)

	1970	Share	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	Share
Ecuador	1,364	22.7	1,351	1,377	1,370	1,357	1,362	1,201	1,261	1,363	1,386	1,318	1,247	17.7
Colombia	257	4.3	235	195	214	332	390	457	561	592	635	786	830	11.8
Brazil	196	3.3	176	114	139	156	147	92	112	133	129	67	55	0.8
Subtotal	1,817	30.3	1,762	1,686	1,723	1,845	1,899	1,750	1,934	2,088	2,150	2,171	2,132	30.2
Costa Rica	856	14.3	856	1,078	1,179	1,038	1,105	970	961	955	965	888	900	12.7
Honduras	807	13.5	1,000	820	850	640	370	612	695	712	895	867	820	11.6
Panama	601	10.0	590	604	538	420	486	524	524	624	572	500	625	8.9
Guatemala	180	3.0	181	258	220	250	240	257	261	249	236	352	370	5.2
Nicaragua	5	0.1	0	42	105	113	134	113	113	123	110	110	90	1.3
Subtotal	2,449	40.8	2,627	2,802	2,892	2,461	2,335	2,476	1,593	2,663	2,668	2,717	2,805	39.7
Martinique	140	2.3	152	192	150	187	166	211	226	243	140	73	156	2.2
Guadeloupe	89	1.5	107	120	114	118	111	108	106	133	91	56	118	1.7
Jamaica	136	2.3	128	129	109	73	71	78	76	78	69	33	19	0.3
Subtotal	365	6.1	387	441	373	378	348	397	408	454	300	162	293	4.2
Philippines	55	0.9	185	422	466	663	823	764	841	834	859	923	850	12.0
Taiwan	272	4.5	352	262	250	160	120	110	150	95	120	105	80	1.1
Subtotal	327	5.5	537	684	716	823	943	874	991	929	979	1,028	930	13.2
Ivory Coast	136	2.3	141	164	132	158	136	97	113	140	118	121	105	1.5
Cameroon	47	0.8	51	65	65	74	74	81	82	83	78	60	64	0.9
Subtotal	183	3.1	192	229	197	232	210	178	195	223	196	181	169	2.4
Canary Is.	386	6.4	396	333	381	368	320	320	325	375	364	405	411	5.8
Grand total	5,527	92.1	5,901	6,175	6,282	6,107	6,055	5,995	6,407	6,732	6,767	6,664	6,740	95.5
World total	6,000	100.0	6,396	6,689	6,741	6,575	6,447	6,433	6,818	7,166	7,164	6,956	7,059	100.0

Source: FAO

annual average rate of increase of 12% was much higher than the world average. Accordingly, their share in the world trade increased from 5% in 1970 to 13% in 1981. Looked at closely, however, it should be noted that the exports of the Philippines increased remarkably, while those of Taiwan fell. As mentioned later, this is because much of the banana production in the Philippines was undertaken by three of the largest multi-national companies in the world and by some Japanese trading firms, and since 1971, the position of the two countries have reversed.

Another major exporting region is Africa, where the Ivory Coast and Cameroon are large exporters and the Canary Islands to a lesser extent. Most of the banana export from the Canary Islands are for Spain, the mother country, and though this may not strictly be termed exports, it can be said at least that the Islands are the main supplier of bananas to Spain. Movements in exports of the two African countries are relatively unstable, fluctuating year by year.

The leading exporter in 1981 was Ecuador, followed by Costa Rica, the Philippines, Colombia and Honduras. Except for Ecuador, whose share of the market is very large, the other four countries compete with one another for a bigger share of the market, and therefore there is great likelihood that their relative positions could change in the future due to changes in the annual production.

III. Production and Exports in the Main Exporting Countries

1. Ecuador

Ecuador has held first place among the exporting countries since the Central American banana industry was hit severely by Panama disease in the 1950s. Its share of the world export market in 1981 was about 18%.

With regard to the relationship between cultivated land, harvests and banana exports from Ecuador (Table B-3), it has been found that the amount of cultivated land has tended to decrease, whereas the unit yield has tended to increase. This suggests that Ecuador has made more efforts in the raising of productivity than in the expansion of banana plantations since the middle of the 1970s.

The gross harvest decreased from nearly 3 million tons in 1970 to 2 million tons around 1980. The exports were, however, maintained at a level of 1.3 million tons during the 1970s. The foreign currency earnings which Ecuador obtained from banana exports until

1971, before it began exporting oil, accounted for over 50% of the total income from all exports, and therefore played an important role in the economic system.[1] About 20% of the total labor force is engaged in the banana industry.

Table B-3 Area under Cultivation, Harvest and Exports of Bananas in Ecuador

	Area under cultivation (1,000 ha)	Harvest (1,000 tons)	Unit Yield (kg/ha)	Exports (1,000 tons)
1970	194	2,911	15,041	1,364
1971	181	2,743	15,150	1,351
1972	171	2,582	15,120	1,377
1973	162	2,496	15,416	1,370
1974	152	2,676	17,634	1,357
1975	110	2,544	23,160	1,362
1976	107	2,571	23,960	1,201
1977	101	2,451	24,375	1,261
1978	77	2,152	28,000	1,363
1979	68	2,032	30,076	1,386
1980	70	2,269	32,194	1,318
1981	95	2,138	22,505	1,247

Source: FAO

2. Colombia

Colombia expanded its share in the world export market from 4% to 12% through the 1970s, establishing a position as one of the main banana exporters. This was because Colombia switched to the Cavendish variety and expanded its cultivated area.

The area under cultivation increased from 59,000 ha in 1970 to 76,000 ha in 1981, and harvests also increased from about 800,000 tons to 1.2 million tons (Table B-4). Although the unit yield per ha increased from 13,000 kg to 16,000 kg, it did not reach the level of Ecuador.

1) The proportion of bananas in total exports fell rapidly as a result of oil exports and accounted for no more than about 9% as of 1980 (according to IMF).

The quantity of exports kept on increasing from 250,000 tons to 830,000 tons through the 1970s, showing an annual increase rate of 11%. The proportion of exports in the gross harvest rose from about one-third in 1970 to about two-thirds in 1981.

According to the latest information, Standard Fruits Co., a major producer, has a plan to reduce its cultivated area in Colombia, which raises doubts about the future of banana production and exports from Colombia.

Table B-4 Area under Cultivation, Harvest and Exports of Bananas in Colombia

	Area under cultivation (1,000 ha)	Harvest (1,000 tons)	Unit Yield (kg/ha)	Exports (1,000 tons)
1970	59	780	13,335	257
1971	60	804	13,325	235
1972	62	828	13,327	195
1973	66	900	13,636	214
1974	68	954	14,029	332
1975	69	1,500	15,217	390
1976	72	1,100	15,278	457
1977	72	1,100	15,278	561
1978	72	1,100	15,278	592
1979	72	1,100	15,278	635
1980	75	1,200	16,000	786
1981	76	1,229	16,105	830

Source: FAO

3. Brazil

Although Brazil is the largest banana producer in the world, as an exporter it is only one of many. Both the area under cultivation and banana harvests are on the increase, whereas the quantity of exports is decreasing. The cause of this decline in exports is that Argentina, which before was Brazil's main customer, turned to Ecuador for imports.

Table B-5 Area under Cultivation, Harvest and Exports of Bananas in Brazil

	Area under cultivation (1,000 ha)	Harvest (1,000 tons)	Unit Yield (kg/ha)	Exports (1,000 tons)
1970	278	4,806	17,303	196
1971	280	5,104	18,232	176
1972	272	5,250	19,283	114
1973	310	5,304	17,113	139
1974	310	5,291	17,062	156
1975	314	5,455	17,393	147
1976	312	5,726	18,381	92
1977	352	6,415	18,246	112
1978	316	6,240	19,734	133
1979	344	6,133	17,847	129
1980	371	6,736	18,164	67
1981	387	6,686	17,900	55

Source: FAO

4. The Five Central American Countries

The total of banana exports from five Central American countries (Panama, Costa Rica, Honduras, Guatemala and Nicaragua) accounts for about 40% of the total world trade, and so these countries form the largest supplying region. This is attributed to the fact that this is the region where banana cultivation began, and that banana exports have provided these countries with the bulk of their foreign currency holdings. The current situation of banana production and exports by country is described below.

4.1 Panama (Table B-6)

Although Panama has the largest area under banana cultivation of the five Central American countries, because of low productivity, it is at the bottom in terms of unit yield.

Neither the area under cultivation and harvests have shown any major change in the past decade, and the exports have shown no tendency to increase, though certain movements can be seen from year to year. Exports have moved in the range from 500,000 - 600,000 tons in the past ten years.

Table B-6 Area under Cultivation, Harvest and Exports of Bananas in Panama

	Area under cultivation (1,000 ha)	Harvest (1,000 tons)	Unit Yield (kg/ha)	Exports (1,000 tons)
1970	210	989	4,709	601
1971	210	1,013	4,822	590
1972	210	988	4,707	604
1973	210	964	4,589	538
1974	210	977	4,651	420
1975	215	989	4,602	486
1976	215	999	4,684	524
1977	215	1,028	4,780	524
1978	215	1,056	4,914	624
1979	215	1,000	4,651	572
1980	220	1,050	4,773	500
1981	226	1,082	4,791	625

Source: FAO

4.2 Costa Rica (Table B-7)

Among the top five banana exporters in the world, Costa Rica and Honduras are similar, in terms of harvests and productivity (unit yield). Costa Rica differs from Honduras in that 80 - 90% of its harvest is alloted to exports, whereas the proportion of exports to output is only 60% in the case of Honduras (see Table B-8). The quantity of exports has not grown but maintained an average level of 1 million tons in recent years.

According to an FAO survey, the Costa Rican Government passed a law in 1978 to allow for expansion of cultivated area by 7,600 ha on the Atlantic Coast. However, since about 2,000 ha of the new area (government and private sector areas combined) was subsequently abandoned, it is supposed that the newly cultivated area was finally about 3,500 - 4,000 ha.

The expansion of banana plantation involves two major factors. Firstly, a buyer must be found and a contract should be concluded before the Government will allow banana production to proceed, and secondly, investment in banana production requires considerable funds.

In the case of Costa Rica, new planting entails 110,000 colones [1] per ha. Accordingly, the participation of the Government and large capital is often necessary when expanding area of banana plantations.

Table B-7 Area under Cultivation, Harvest and Exports of Bananas in Costa Rica

	Area under cultivation (1,000 ha)	Harvest (1,000 tons)	Unit Yield (kg/ha)	Exports (1,000 tons)
1970	39	1,146	29,468	856
1971	40	1,250	31,646	856
1972	40	1,250	31,646	1,078
1973	36	1,198	33,138	1,179
1974	36	1,151	31,843	1,038
1975	40	1,221	30,468	1,105
1976	42	1,187	28,220	970
1977	37	1,125	30,397	961
1978	39	1,149	25,465	955
1979	30	1,078	35,939	965
1980	30	1,092	36,385	888
1981	26	1,144	43,534	900

Source: FAO

4.3 Honduras (Table B-8)

The area under banana cultivation in Honduras has changed little in the past ten years. As a result, harvest levels have been stable at 1.3 ~ 1.5 million tons per annum, of which about 60% or 800,000 - 900,000 tons are exported.

Table B-8 shows the remarkable decrease in harvest in 1975, caused by the hurricane in 1974. Since then, natural disasters and social conditions, namely, sigatoka (black leaf spots) which hit in 1978, the winds of 1979 and the labor dispute of 1980, have continued to inhibit banana production. Nevertheless, the drop in production was not significantly large.

1) At 18.84 colon to 1 dollar in banana exports, 110,000 colon is equivalent to $5,840; and if the rate as of July 1981, 1 dollar = 8.5 colon, is applied, 110,000 colon is equivalent to $12,940.

Table B-8 Area under Cultivation, Harvest and Exports of Bananas in Honduras

	Area under cultivation (1,000 ha)	Harvest (1,000 tons)	Unit Yield (kg/ha)	Exports (1,000 tons)
1970	41	1,348	32,516	807
1971	46	1,521	33,231	1,000
1972	49	1,619	33,050	820
1973	38	1,504	39,995	850
1974	30	1,277	42,358	640
1975	37	783	21,241	370
1976	37	1,074	29,026	612
1977	38	1,235	32,501	695
1978	40	1,267	32,064	712
1979	40	1,300	32,500	895
1980	41	1,330	32,435	867
1981	41	1,330	32,439	820

Source: FAO

4.4 Guatemala (Table B-9)

The area under banana cultivation in Guatemala increased from 57,000 ha in 1970 to 69,000 ha in 1981. Yet, although harvests increased from 500,000 tons to 570,000 - 580,000 tons, the unit yield changed little.

In contrast, the growth in exports was remarkable. From only 180,000 tons in 1970, exports more than doubled to 370,000 tons in 1981 (an average annual increase of 6.8%).

4.5 Nicaragua (Table B-10)

It was not until the 1970s that Nicaragua began to appear as a force in the world market. It is the newcomer among the five Central American countries. Thus, as would be expected, increases in the cultivated area and harvest are most striking after 1970. It was not until after 1973, however, that full-scale production and exporting began. Both production and export levels had exceeded 100,000 tons by this time. Since then, the exports have stayed at a level of around 100,000 tons but the news that the Standard Fruits Co., the monopoly that is responsible for all exports, has decided to withdraw from Nicaragua makes forecasting the future of banana exports from this country very difficult.

Table B-9 Area under Cultivation, Harvest and Exports of Bananas in Guatemala

	Area under cultivation (1,000 ha)	Harvest (1,000 tons)	Unit Yield (kg/ha)	Exports (1,000 tons)
1970	57	487	8,543	180
1971	58	495	8,534	181
1972	60	510	8,500	258
1973	61	520	8,525	220
1974	59	510	8,644	250
1975	60	520	8,667	240
1976	65	550	8,462	257
1977	65	545	8,385	261
1978	66	550	8,333	249
1979	67	556	8,299	236
1980	68	580	8,529	352
1981	69	573	8,297	370

Source: FAO

Table B-10 Area under Cultivation, Harvest and Exports of Bananas in Nicaragua

	Area under cultivation (1,000 ha)	Harvest (1,000 tons)	Unit Yield (kg/ha)	Exports (1,000 tons)
1970	3	18	6,000	5
1971	3	14	5,600	0
1972	13	64	4,950	42
1973	23	130	5,616	105
1974	23	148	6,375	113
1975	23	153	6,603	134
1976	23	153	6,586	113
1977	23	154	6,616	113
1978	24	157	6,681	123
1979	23	150	6,522	110
1980	24	160	6,667	110
1981	26	170	6,648	90

Source: FAO

5. Caribbean Countries (Tables B-11, B-12 and B-13)

The Caribbean countries have long been established as banana producers, but the production is not constant because of the occurrence of natural disasters, especially hurricanes. According to Martinique and Guadeloupe statistics, production decreased considerably in 1979 and 1980 owing to two hurricanes. As a result, both of these islands are now endeavoring to exterminate harmful desease and insects, as well as replanting to improve the quality of its bananas.

The banana production and distribution in this region are closely bound up with the former suzerain countries (France and the United Kingdom), thereby creating a situation different from those in the Central and South American countries.

5.1 Martinique (Table B-11)

The area under banana cultivation on the island of Martinique was at a level of about 10,000 ha through the 1970s, and almost all of the harvest (around 90%) was exported. Although exports reached a level of 200,000 tons, they levelled out due to the effects of the 1980 hurricane.

Table B-11 Area under Cultivation, Harvest and Exports of Bananas in Martinique

	Area under cultivation (1,000 ha)	Harvest (1,000 tons)	Unit Yield (kg/ha)	Exports (1,000 tons)
1970	9	155	17,204	140
1971	9	174	19,355	152
1972	9	223	24,731	192
1973	9	190	21,113	150
1974	9	223	24,731	187
1975	9	200	22,175	166
1976	10	269	26,929	211
1977	10	290	29,000	226
1978	10	305	30,500	243
1979	9	178	19,818	140
1980	7	77	11,025	73
1981	9	140	15,556	156

Source: FAO

5.2 Guadeloupe (Table B-12)

The area under cultivation has remained unchanged at 7,000 ha since 1973 in Guadeloupe, and the harvest was 170,000 tons at its peak, falling to 120,000 tons in 1980 and 1981 when hurricanes damaged the crops. Guadeloupe, like Martinique, exports almost all of its harvest.

Table B-12 Area under Cultivation, Harvest and Exports of Bananas in Guadeloupe

	Area under cultivation (1,000 ha)	Harvest (1,000 tons)	Unit Yield (kg/ha)	Exports (1,000 tons)
1970	8	126	15,181	89
1971	9	148	17,412	107
1972	9	174	19,333	120
1973	7	160	23,863	114
1974	7	165	24,608	118
1975	7	158	24,234	111
1976	7	151	23,269	108
1977	7	142	19,439	106
1978	7	170	23,323	133
1979	7	116	15,921	91
1980	7	118	16,857	56
1981	7	120	17,143	118

Source: FAO

5.3 Jamaica (Table B-13)

The area under banana cultivation in Jamaica has tended to decrease, and both harvest and export levels have fallen remarkably. The decrease in the exports was sharp, especially in 1980, and the total in 1981 was only 20,000 tons.

6. Philippines (Table B-14)

It was only recently that the Philippines entered the banana market when, in 1969, it began full-scale exports. Exports continued to expand through the 1970s and reached 920,000 tons in 1980,

Table B-13 Area under Cultivation, Harvest and Exports of Bananas in Jamaica

	Area under cultivation (1,000 ha)	Harvest (1,000 tons)	Unit Yield (kg/ha)	Exports (1,000 tons)
1970	30	195	6,500	136
1971	30	187	6,233	128
1972	30	189	6,300	129
1973	30	169	5,633	109
1974	25	132	5,280	73
1975	25	127	5,080	71
1976	29	140	4,828	78
1977	29	140	4,828	76
1978	29	140	4,828	78
1979	25	130	5,200	69
1980	20	100	5,000	33
1981	20	100	5,000	19

Source: FAO

Table B-14 Area under Cultivation, Harvest and Exports of Bananas in the Philippines

	Area under cultivation (1,000 ha)	Harvest (1,000 tons)	Unit Yield (kg/ha)	Exports (1,000 tons)
1970	235	896	3,810	55
1971	227	1,035	4,556	185
1972	244	980	4,021	422
1973	250	1,013	4,044	466
1974	212	1,236	5,834	663
1975	233	1,686	7,227	823
1976	299	3,068	10,271	764
1977	300	2,447	8,146	841
1978	284	3,156	11,098	834
1979	326	4,162	12,778	859
1980	318	3,977	12,523	923
1981	320	4,000	12,500	850

Source: FAO

accounting for 13% of the total of world exports. By 1980, the Philippines was the second largest exporter.

Development of the banana industry in the Philippines was undertaken by the three large banana producers and the increases in planting were achieved on a large scale by adopting modern technology. The Philippine Government has encouraged and regulated the export of bananas by law. The area under cultivation for the sole purpose of exports was increased by 21,000 ha by Letter of Instruction (LOI) No. 58 in 1973, and expanded to 25,000 ha in 1979 LOI No. 790. It seems that planting has so far been completed over an area of 23,000 - 24,000 ha.[1] The main consumers of Philippine bananas are Japan and the Middle East countries. As a result of the recent drop in the Japan's demand for bananas, the Japan's share has fallen. The proportion of Japan's imports from the Philippines was 79% and that of Middle East countries 21%, in 1981 (the figures in 1978 were 85% and 15%, respectively). Recently, there has been a tendency towards overproduction in the Philippines.

7. Taiwan (Table B-15)

The banana production and exports from Taiwan showed a downturn when the Philippines first began exporting bananas. This is because Ecuador and the Philippines became the major banana suppliers for Japan when the demand for bananas increased in Japan. Another reason for the sluggishness of banana production in Taiwan may be that agricultural development, and therefore banana cultivation, was not given enough importance because Taiwan promoted rapid industrialization during the same period.

As a result, both the area under cultivation and harvests tended to fall through the 1970s from 250,000 - 300,000 tons at the beginning of the 1970s to 100,000 tons in 1980 and 80,000 tons in 1981. The proportion of exports from the total harvest decreased from 60 - 70% to less than 50%, which may have been caused by the increase in the domestic demand resulting from the increase in population.

1) Bananas from these plantations are exclusively for export, and the unit yield is considerably higher (about 40-50 tons/ha).

Table B-15 Area under Cultivation, Harvest and Exports of Bananas in Taiwan

	Area under cultivation (1,000 ha)	Harvest (1,000 tons)	Unit Yield (kg/ha)	Exports (1,000 tons)
1970	39	462	11,838	272
1971	30	471	15,583	352
1972	23	366	16,053	262
1973	20	423	20,692	250
1974	16	334	21,125	160
1975	11	197	18,165	120
1976	11	213	19,141	110
1977	11	252	23,938	150
1978	10	182	18,971	95
1979	10	227	22,883	120
1980	9	214	23,045	105
1981	11	230	20,909	80

Source: Taiwan Provincial Fruit Marketing Cooperative, Taiwan Fruit Yearbook

8. Other Countries

8.1 African Countries

The major banana exporting countries in Africa are the Ivory Coast and Cameroon, both of which produce bananas in accordance with import quotas which their former suzerain countries, France, imposes and therefore, they are under the protection of France in terms of both price and quantity.

Production in the Ivory Coast fluctuated within a range of 150,000 - 200,000 tons through the 1970s, with exports being in the range of 100,000 - 150,000 tons, accounting for 60 - 75% of total output.

On the other hand, production in Cameroon has continued to maintain a level of 100,000 tons over the decade, but exports have fluctuated between 60,000 tons and 80,000 tons annually. The governments of both countries are now endeavoring to raise productivity.

8.2 Canary Islands

Banana production and exports from the Canary Islands, a Spanish dependency, are all for Spain, and therefore they can perhaps not properly be called exports. Since FAO statistics, however, treat them as exports, and they account for about 6% of the world trade transported by ship, it is necessary to refer to them here.

Banana production in the Canary Islands has been steady at a level of around 400,000 tons in the past decade, almost all of which amount was supplied to the Spanish mainland. This pattern will probably not change for some time to come.

C. CONSUMPTION AND IMPORTS

1. Current World Consumption (Imports)

The examination of banana consumption is dependent on trade statistics, in particular import figures, because statistical data are not sufficiently available. The total of world banana imports, which is approximately equal to total exports, increased at an annual average rate of about 1.5% from about 6 million tons in 1970 to 7 million tons in 1981 (Table C-1).

Looked at on a regional basis, it can be seen that the proportion of developed countries among all banana importers is very high, although their share of the market fell slightly from 90% in 1970 to 86% in 1981. One reason for this could be that the consumption per capita in developed countries has reached its peak or even started to decline.

The North American region is the biggest consumer of bananas among all the developed regions, and its share of the world's banana imports increased through the 1970s. In this region, the United States accounts for the overwhelming share, being the largest importer in the world.

The second largest consuming region is the EC. Banana exports to the EC did not, however, grow through the 1970s but fluctuated within the range of 1.8 - 2 million tons, and its share of the world imports fell. This tendency is seen also in other European countries.

Of the developed countries, Japan is second only to the United States in banana imports. Japan's imports, however, have tended to decrease since they reached a peak of 1 million tons in 1972. As a result, its share fell from 15% in 1970 to 10% in 1981.

In contrast with the tendency for the imports to developed countries to reach a ceiling, imports to developing countries and centrally planned economies have tended to increase.

The largest importing area among the developing countries is the Latin American region. The imports are, however, not constant, falling from about 300,000 tons in the beginning of the 1970s to a level of 100,000 tons in the middle seventies, and recovering to a level of 300,000 tons by 1980.

The Middle East, where many oil-producing countries are located, showed a considerable increase in banana imports during the 1970s.

Table C-1 World and Regional Trends in Banana Imports

(1,000 tons, %)

	1970	Share	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	Share
Developed countries	5,162	90.0	5,637	5,833	5,796	5,626	5,426	5,503	5,629	5,929	5,912	5,761	5,926	85.6
North America	1,814	31.6	1,906	1,912	1,958	2,012	1,937	2,141	2,149	2,273	2,389	2,393	2,543	36.8
USA	1,615	28.1	1,699	1,705	1,743	1,791	1,724	1,903	1,917	2,037	2,140	2,148	2,283	33.0
Canada	199	3.5	207	207	215	221	212	239	231	236	249	246	260	3.8
EC	1,802	31.4	1,976	2,109	2,077	1,966	1,897	1,851	1,967	2,052	1,953	1,853	1,878	27.1
France	436	7.6	457	507	480	490	480	456	500	500	441	446	470	6.8
Germany, FR	517	9.0	632	665	676	589	548	554	584	617	603	534	523	7.6
UK	325	5.7	316	308	282	304	307	307	297	311	305	319	332	4.8
Italy	312	5.4	323	351	353	316	304	268	305	347	328	301	307	4.4
Other European countries	665	11.6	732	713	789	758	662	650	653	762	745	753	761	11.0
Oceania	24	0.0	26	29	33	35	43	29	35	38	35	36	36	0.5
Japan	844	14.7	986	1,063	931	847	885	832	825	804	790	726	708	10.2
Developing countries	439	7.7	453	418	419	491	529	494	576	571	665	732	693	10.0
Latin American	285	5.0	288	189	205	219	161	114	155	185	285	322	305	4.4
Asian	52	0.9	45	46	55	49	56	44	47	57	65	59	57	0.8
Middle Eastern	49	0.9	65	107	80	144	226	265	297	267	245	304	264	3.8
African	52	0.9	56	76	79	79	86	71	77	62	69	46	67	1.0
Centrally planned economies	137	2.4	158	226	269	288	372	334	436	434	437	347	300	4.3
European (including USSR)	137	2.4	158	226	254	284	362	324	426	432	435	345	298	4.3
Other countries	-	-	-	-	15	4	10	10	10	2	2	2	2	-
World total	5,738	100.0	6,249	6,477	6,484	6,406	6,327	6,331	6,640	6,934	7,014	6,839	6,919	100.0

Source: FAO

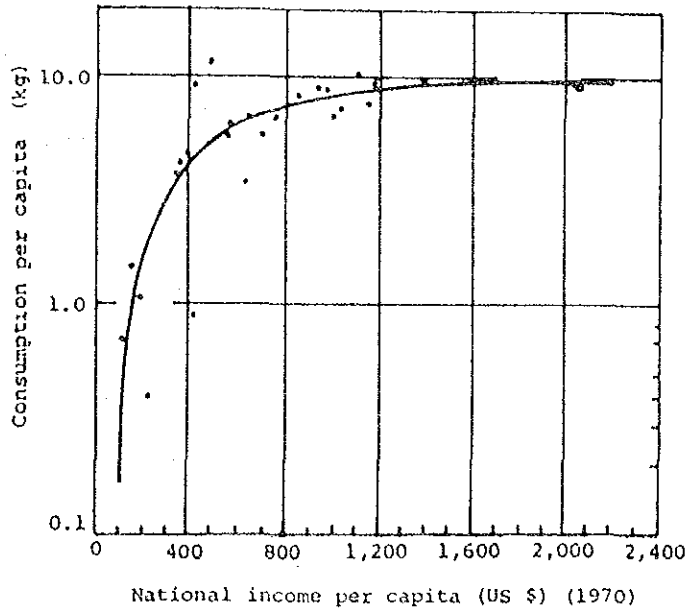
Banana imports there were 50,000 tons in 1970, jumping up to 300,000 tons in 1980. Because of uncertainty in revenue from oil exports, however, the increasing trends of banana imports cannot be considered to continue. In fact, after reaching 300,000 tons in 1980, they fell to 260,000 tons in 1981.

Most banana imports by countries with centrally planned economies are to the USSR and Eastern Europe. Although the volume increased slightly from 1970 to 1979, it decreased in 1980 and 1981. This shows that economic conditions in these countries have a great influence on the import of luxury foods such as bananas.

II. Trends in per Capita Consumption

The basic index to measure banana consumption is per capita consumption. As shown in Fig. C-1, looking at the relationship between per capita consumption and per capita income as of 1970, in cross-sectional data from developing countries to developed countries, per capita consumption increases in parallel to the increase in per capita income, with the ceiling for consumption being at a level of about 8-10 kg per capita.

Fig. C-1 Relation between Average National Income per Capita and Banana Consumption per Capita



Source: Yasuo Wakatsuki, Banana Economics, p. 190.

Reference is now made to recent trends in per capita consumption in the twenty-five main banana importing countries.[1] The total imports of these countries accounts for 90% of the world total, and it may be safe to consider that the imports actually reflect consumption because there is hardly any domestic banana production. The per capita consumption in these twenty-five countries, as shown in Table C-2, fell from 7.9 kg in the peak year of 1973 to 7.1 kg in 1976, and then recovered to 7.7 kg in 1980 and 1981.

In developed countries, except for the United States and Canada, per capita consumption reached more or less a peak in the second half of the 1970s. Figs. C-2 to C-7 show the relationship between per capita consumption and income in six major banana importers — the United States, Japan, the Federal Republic of Germany, the United Kingdom, France and Italy. Whereas no apparent correlation is yet seen between consumption and income in the United States, per capita consumption decreases in Japan, the Federal Republic of Germany, the United Kingdom, France and Italy after the per capita income reaches a certain level.

This may be explained by the fact that banana is partly replaced by other fruit as income rises, and that the popularity of banana with its high-calory content has declined because people are keeping away from foods with excessive caloric intake. Table C-3 shows the relationship between per capita fruit consumption and banana consumption in OECD member countries. Looking at this table, it is seen that per capita consumption did not show a rapid increase during the 1970s and the proportion of banana consumption in total fruit consumption was almost constant at the level of 8-9%.

On the other hand, in oil-producing countries in Middle East, the consumption per capita has increased through the 1970s, which correlates with the increasing levels of national income as mentioned above. The increase in banana consumption was remarkable, especially in Saudi Arabia.

The per capita consumption in Saudi Arabia is estimated to have risen from 3.4 kg in 1970 to 22 kg in 1980, which is well over the ceiling of 10 kg for developed countries. In the case of Saudi Arabia, however, it seems that the rapid increases in banana imports do not correspond proportionally to the increase in consumption, as some part of the imported quantity is exported to other neighboring countries. Since this rapid increase in the consumption is due mostly to increases in national income that are regarded here as being an unstable factor, as well as to increases in oil revenue, it cannot be stated unreservedly that consumption will continue to increase in the future.

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1) Belgium and Luxemburg are here regarded as one country for the sake of convenience, because statistics treat them as one.

Fig. C-2 United States

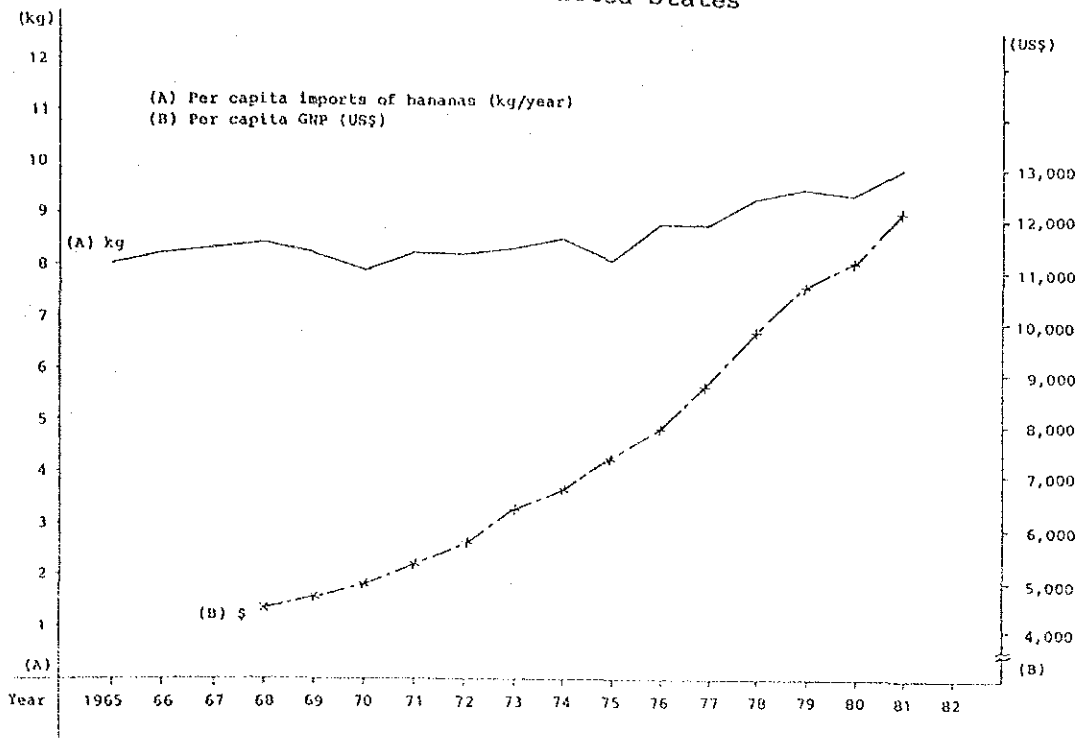


Fig. C-3 Japan

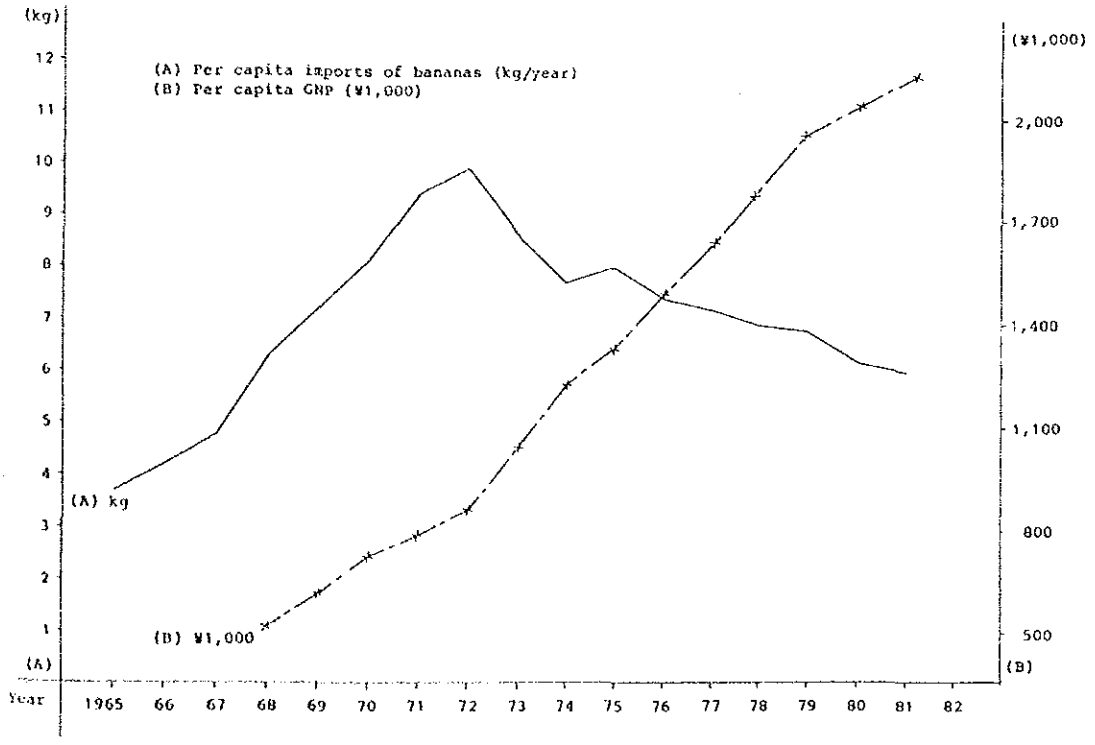


Fig. C-4 Federal Republic of Germany

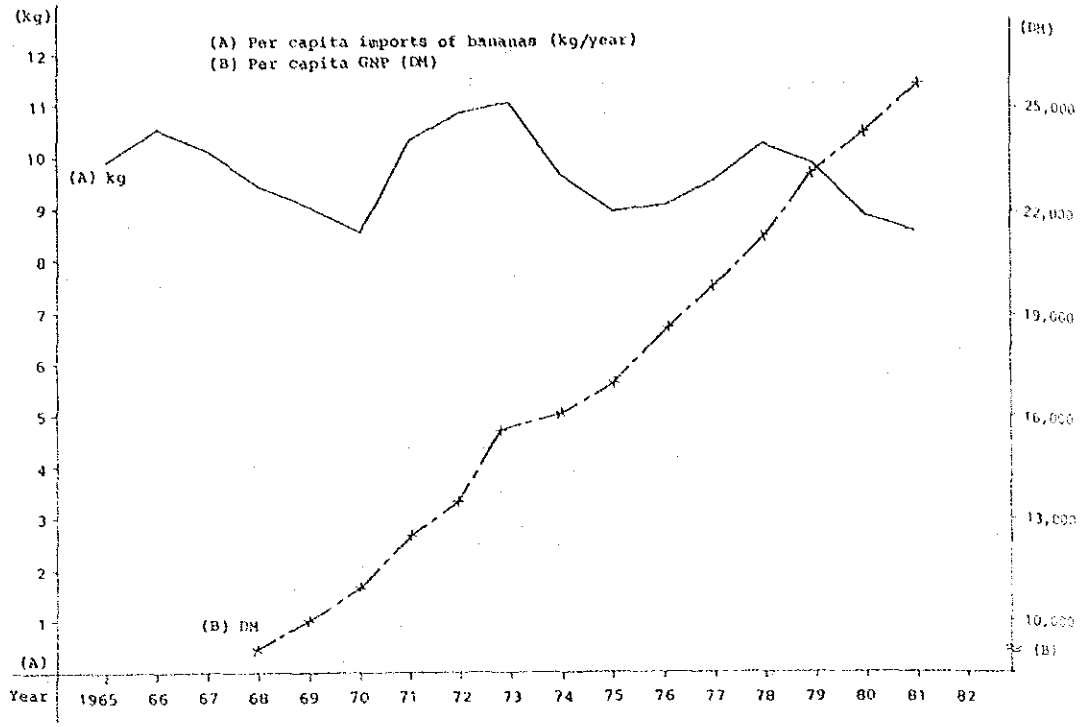


Fig. C-5 United Kingdom

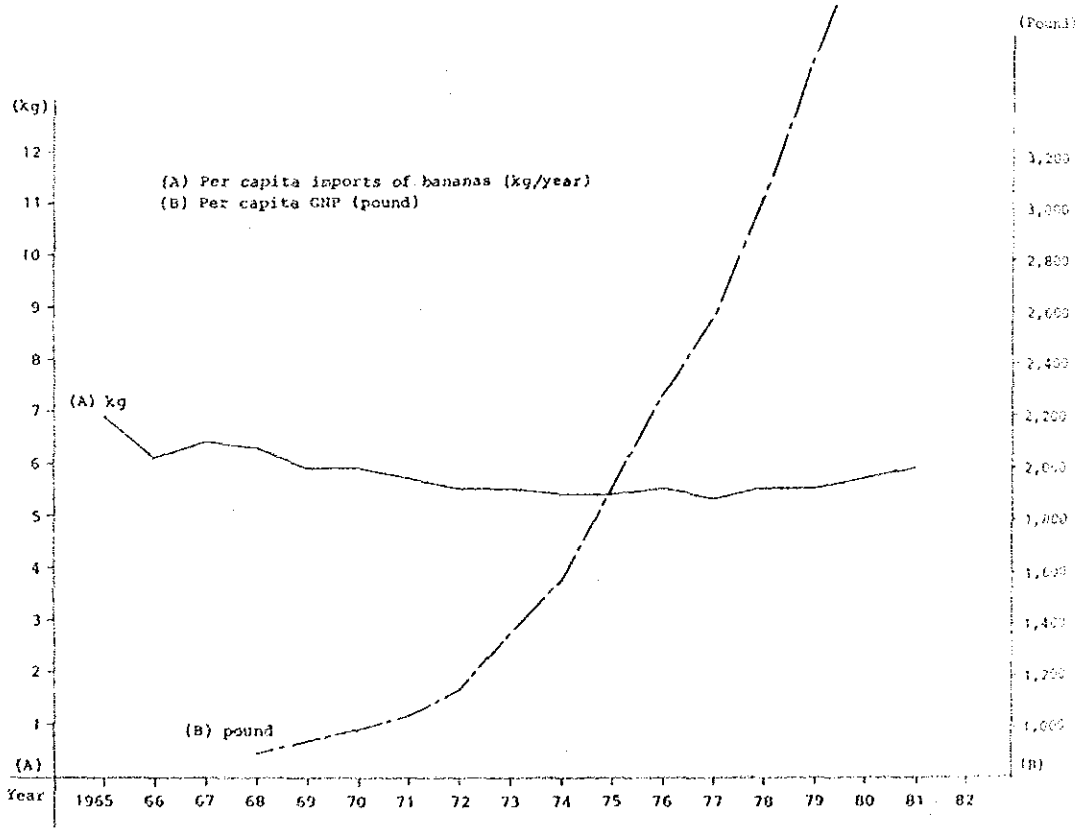


Fig. C-6 France

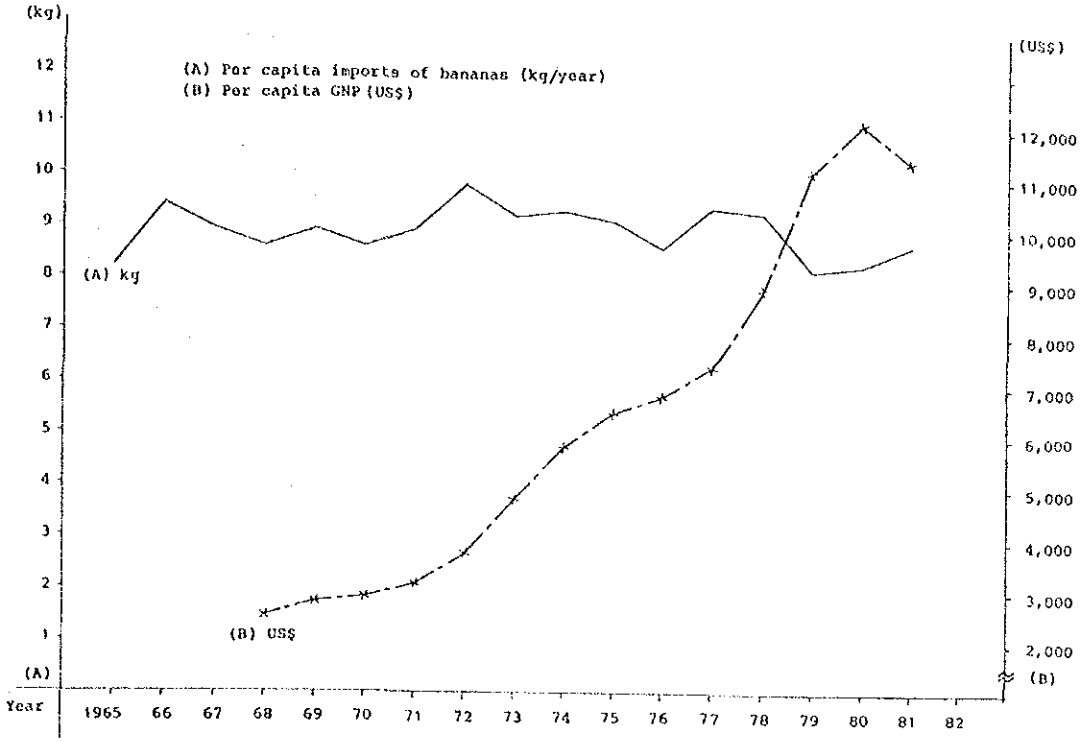


Fig. C-7 Italy

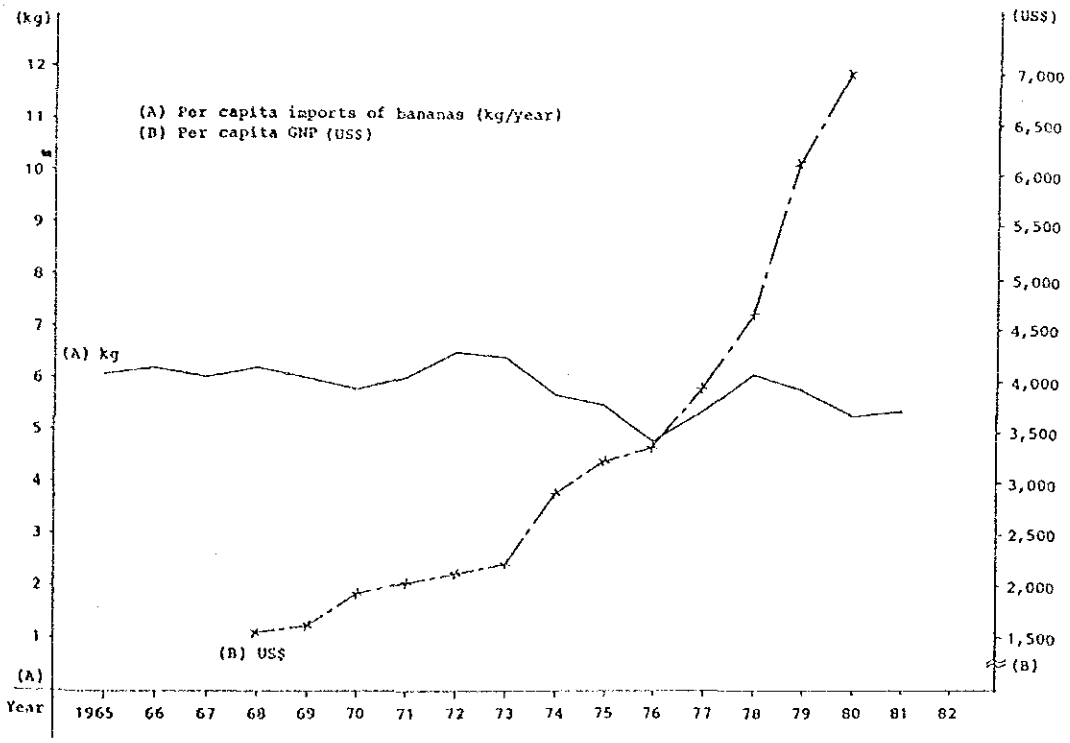


Table C-2 Trends in Banana Consumption per Capita in Main Importing Countries

(kg)

	1970	1972	1973	1974	1976	1978	1980	1981
USA	7.9	8.2	8.3	8.5	8.8	9.3	9.4	9.9
Canada	9.3	9.5	9.7	9.8	10.3	9.9	10.3	10.8
EC								
Germany, FR	8.5	10.8	11.0	9.6	9.0	10.2	8.7	8.5
France	8.6	9.8	9.2	9.3	8.6	9.3	8.3	8.7
UK	5.9	5.5	5.5	5.4	5.5	5.5	5.7	5.9
Italy	5.8	6.5	6.4	5.7	4.8	6.1	5.3	5.4
Netherlands	6.2	8.9	9.0	8.6	8.2	8.8	8.1	7.7
Belgium-Luxemburg	7.3	9.5	9.3	8.8	8.5	9.1	8.8	8.6
Ireland	6.8	8.3	11.3	11.3	10.4	7.2	6.9	7.0
Denmark	7.3	8.2	9.1	7.2	6.4	7.5	5.6	5.5
Other European countries								
Austria	7.7	10.1	10.8	9.4	9.6	12.4	10.2	10.1
Switzerland	9.5	10.7	11.1	10.6	9.2	10.0	10.0	9.2
Sweden	8.2	9.7	10.2	9.2	8.9	9.4	8.4	8.7
Finland	4.7	6.5	8.5	8.8	8.5	9.5	8.2	8.9
Norway	8.6	10.4	10.8	9.9	9.8	9.1	7.5	8.1
Spain	10.3	9.1	10.8	10.3	8.4	10.2	10.8	10.9
Portugal	7.4	9.6	10.2	10.7	6.8	5.1	4.5	4.5
Japan	8.1	9.9	8.6	7.7	7.4	6.9	6.2	6.0
Middle East								
Saudi Arabia	3.4	4.4	4.8	4.7	6.1	10.1	22.0	21.4
Iran	0.1	1.1	0.9	2.3	3.8	1.4	-	-
Latin America								
Argentina	7.1	4.2	5.5	6.1	2.7	4.2	7.2	5.6
Chile	8.5	6.6	5.5	5.8	3.3	5.2	8.7	10.9
East Europe								
German DR	1.8	5.8	5.9	6.5	4.3	6.9	4.8	4.9
Yugoslavia	2.0	2.5	3.1	4.2	4.8	6.1	3.2	2.4
Czechoslovakia	2.0	2.3	2.9	3.0	4.3	4.8	3.9	3.1
Total average	6.5	7.5	7.9	7.7	7.1	7.8	7.7	7.7

Source: FAO

Table C-3 Comparison of Fruit Consumption with Banana Consumption per Capita

(kg)

	Fruit consumption per capita *	Banana consumption per capita **	Banana/Fruit (%)
1970	72.52	6.5	8.3
1971	76.93	7.3	8.7
1972	76.31	7.5	8.9
1973	79.67	7.9	9.0
1974	76.23	7.7	8.2
1975	79.66	7.2	8.3
1976	78.77	7.1	8.2
1977	75.76	7.7	9.3
1978	83.09	7.8	8.5

* Averages of 24 member countries of OECD
** Averages of 25 banana importing countries

Source: OECD, etc.

The per capita consumption in two importing countries in Latin America, Argentina and Chile varies year by year, showing no fixed pattern. This is probably because these countries encourage or restrict imports according to changes in economic conditions.

Trends in the per capita consumption in East European countries are similar to those in Latin American countries. That is, they show no particular pattern, perhaps because trade controls are stricter than or as strict as those in Latin American countries.

III. Trends in Imports (Consumption) of the Main Importing Countries

1. The United States

The United States is the leading banana importer in the world. Trends in imports by trading partner are shown in Table C-4, and virtually all banana imports are derived from the Latin American countries. Although the main exporters vary year by year, three countries (Honduras, Ecuador and Costa Rica) supply the bulk of the United States' banana needs.

Table C-4 Banana Imports to USA, by Trading Partner

(1,000 tons, %)

	1970		1975		1980	
		Share		Share		Share
Honduras	503	27.9	263	13.8	610	28.4
Ecuador	324	18.0	431	22.6	478	22.3
Costa Rica	485	26.9	631	33.1	435	20.3
Guatemala	59	3.3	203	10.6	202	9.4
Colombia	51	2.8	142	7.4	193	9.0
Panama	368	20.4	109	5.7	106	4.9
Nicaragua	5	0.3	121	6.3	97	4.5
Others	10	0.5	9	0.5	27	1.3
Total	1,805	100.0	1,909	100.0	2,148	100.0

Source: FAO

Banana plantations in these Latin American countries were originally developed with capital from the United States and therefore, historically, have a strong relationship with the U.S. market. Three leading banana producers - United Brands Co. (Honduras), Standard Fruits Co. (Ecuador), and Del Monte Corp. (Costa Rica) are directly concerned with production in supplying areas through ownership of plantations and by the inclusion of contracts with guarantees of long-term purchase.

In this context, the relation between these three major banana producing companies and exports from each of the three countries in which they operate to the United States is shown in Table C-5.

Table C-5 Relation between Exporters and US Shippers (1980)

(1,000 tons, %)

	Imports	United Brands Co.	Standard Fruits Co.	Del Monte Corp.	Others
Honduras	610	53	47	0	0
Ecuador	478	0	23	0	73
Costa Rica	435	34	36	30	0
Guatemala	202	0	0	100	0
Colombia	193	38	20	0	42
Panama	106	93	0	0	7
Nicaragua	97	0	100	0	0
Total	2,148	35	37	19	9

Source: FAO

Banana imports are distributed in the United States by as many as 1,000 dealers.

The main banana exports to Canada are from almost the same seven Latin American countries as exports to the United States.

2. The Federal Republic of Germany

The Federal Republic of Germany is the largest banana importer in Europe. Its main suppliers are the banana producing countries of Latin America, as shown in Table C-6.

With regard to the system for banana imports, the Federal Republic of Germany, like the Benelux countries, is one of the few countries with a free market system, where importers and distributors compete intensely with one another, thereby providing consumers with cheaper bananas.

The major import organizations (as of 1981) are:

	(Share in total import)
a. Bremer Fruchthof group	43%
b. Eurobana (Standard Fruits Co.)	20%
c. Pacific Fruit Import (NOBOA)	14%
d. Inter (Weichert) Del Monte Corp.	10%
e. Afrikanische Frucht Compagnie	8%

Table C-6 Imports to Germany, FR, by Trading Partner

(1,000 tons, %)

	1970		1975		1980	
		Share		Share		Share
Panama	120	23.2	116	21.2	144	27.0
Honduras	92	17.8	48	8.8	110	20.6
Costa Rica	84	16.2	150	27.4	127	23.8
Ecuador	139	26.9	151	27.6	76	14.2
Colombia	31	6.0	77	14.1	70	13.1
Guatemala	49	9.5	1	0.2	6	1.1
Others	2	0.4	5	0.9	1	0.2
Total	517	100.0	548	100.0	534	100.0

Source: FAO

3. France

The banana exporters to France (see Table C-7) are quite different from those supplying the Federal Republic of Germany. This is because France traditionally adopts a preferential import policy with its former dependencies. A private organization, Comite Interprofessional de Banana (CIB) establishes import quotas in order to protect existing or past French dependencies. The order of priority is: (1) present and former French territories; (2) EC associate countries; and (3) other countries. At present, import quotas are as follows:

a. Two thirds of imports — West Indian dependencies (Martinique and Guadeloupe).

b. One third of imports — Former African dependencies (Ivory Coast, Cameroon, Madagascar).

Imports from other countries fluctuate widely depending on the level of imports from the above two regions. The main import organizations and their market share in 1980 were as follows:

Compagnie des Bananes (United Brands Group)	24%
POMANA (the largest dealer of fruit and vegetable imports in France)	14%
Compagnie Fruitiere	13%
UNIBANA (the producers' association in the Martinique Islands)	9%
SIFA (Societe d'Importations Franco Antillaise)	6%

Table C-7 Imports to France, by Trading Partner

(1,000 tons, %)

	1970		1975		1980	
		Share		Share		Share
Martinique	136	31.3	164	34.2	68	15.2
Guadeloupe	90	20.7	111	23.1	54	12.1
Ivory Coast	100	23.0	101	21.0	106	23.8
Cameroon	45	10.3	59	12.3	49	11.0
Madagascar	9	2.1	3	0.6	2	0.4
Colombia	3	0.7	7	1.5	62	13.9
Ecuador	19	4.4	30	6.3	41	9.2
Others	39	9.0	5	1.0	64	14.3
Total	435	100.0	480	100.0	446	100.0

Source: FAO

4. The United Kingdom

The major banana exporters to the United Kingdom are Jamaica, a former dependency, and the Windward Islands, still a dependency. Previously, the United Kingdom imported all its bananas from these two Caribbean countries. There has, however, recently been a tendency to increase the number of exporting countries as a result of the reduction in banana production in the above mentioned countries due to natural disasters (Table C-8). This tendency was accelerated by the United Kingdom's entry into the EC. EC membership made it difficult to continue protective tariff policies.

Regarding import tariffs in the United Kingdom, countries which are exempted from them are: (1) the Caribbean islands of the United Kingdom, to protect their banana industry; and (2) 46 developing countries in ACP (Africa, Caribbean, and Pacific regions) under the terms of the Lomé Convention, which specifies the trade relationship between the United Kingdom and the 46 countries. (3) Dollar regions, however, are not exempted.

Imports are not restricted from regions (1) and (2), but those from region (3) are subject to import quotas on the basis of a fixed concessional quantity level (basic fixed quantity and quantities thereafter).

There is so little competition in the market that three companies account for around 95% of total imports (1980 figures):

Fyffes Group Ltd. (United Brands Group)	40%
Geest Industries Ltd.	36%
Jamaica Bananas Producers Co.	19%

Table C-8 Imports to the UK, by Trading Partner

(1,000 tons, %)

	1970		1975		1980	
		Share		Share		Share
Colombia	2	0.7	9	2.9	88	27.6
Ecuador	-	-	9	2.9	27	8.5
Costa Rica	-	-	4	1.3	22	6.9
Surinam	9	2.9	34	11.0	23	7.2
Jamaica	129	42.0	69	22.3	34	10.7
Windward Is.	130	42.3	92	29.8	68	21.3
Belize	-	-	-	-	14	4.4
Cameroon	-	-	-	-	11	3.4
Ivory Coast	19	6.2	22	7.2	-	-
Others	18	5.9	70	22.6	32	10.0
Total	307	100.0	309	100.0	319	100.0

Source: FAO

5. Italy

The banana industry in Italy was originated by Italian immigrants in Somalia, a former dependency of Italy, and Somalian bananas dominated the market until 1964. Banana imports from Latin American producers, however, are increasing, because Somalian bananas have not improved in quality or production since that time (Table C-9).

In the banana import system in Italy, the market share is dominated by three major U.S. organizations, namely United Brands Co. (36% in 1980), COMAFRICA (Standard Fruits Co. Group, 22%) and SIMBA (Del Monte Group, 11%). Besides these companies, Pacific Fruit Co., Italy (Noboa Group, 16%) and Somalia National Banana Board and COGIS (9%) have reasonably high market shares.

In order to control its banana imports, Italy has adopted an import quota system giving priority to former Italian dependencies (e.g. Somalia), a licence system obligating importers to use a certain proportion of ships of the Italian flag. Importers must also deposit, without interest, 50% of revenue received at CIF price in the Italian Central Bank.

Table C-9 Imports to Italy, by Trading Partner

(1,000 tons, %)

	1970		1975		1980	
		Share		Share		Share
Guatemala	34	10.9	-	-	25	8.3
Honduras	81	26.0	-	-	9	3.0
Panama	2	0.6	99	32.6	27	9.0
Costa Rica	56	17.9	63	20.7	79	26.2
Colombia	4	1.3	1	0.3	50	16.6
Ecuador	46	14.7	98	32.2	50	16.6
Somalia	80	25.6	34	11.2	28	9.3
Others	9	2.9	9	3.0	33	11.0
Total	312	100.0	304	100.0	301	100.0

Source: FAO

6. Japan

There have been two major changes in the make-up of the major banana suppliers to Japan, the second largest banana importer in the world. The first one was the shift from the reliance on Taiwanese bananas in the pre-1961 period, to dependence on Ecuadorian bananas

in the 1962-1973 period. The second shift began around 1974 with Japan importing most of its bananas from the Philippines.

Although Taiwanese bananas initially represented nearly all of Japan's banana imports, full-scale importing from Ecuador began in 1962 with Ecuador's share rising to 80% in 1963, because banana production in Taiwan could not catch up with the growth in demand. Taiwan, however, recovered its share in the 1964-1969 period, and once again became the main supplier.

As shown in Table C-10, Ecuador was the largest exporter to Japan in the early 1970s, but the Philippines, which established large banana plantations especially aimed at the Japanese market, assumed this position in 1974, and remains Japan's biggest supplier.

In recent years, 80-85% of Japan's banana imports are handled by three major US-owned banana producers. This is largely because many of Japanese dealers withdrew because wholesale prices dropped below the import price as a result of the decrease in banana demand around 1972 when banana imports (consumption) reached a peak.

The market shares of the main banana importers as of 1980 are as follows:

C. Itoh & Co., Ltd. (Standard Fruits)	(Philippine bananas)	30.6%
Tokyo Seika Trading Co., Ltd. (Del Monte)		27.0%
United Fruit Japan Inc. (United Fruit)		16.4%
Sumitomo Shoji Kaisha, Ltd.		8.3%
Others (14 companies)		8.6%
Pacific Fruits Import Ltd. (NOBOA) (Ecuador bananas)		8.4%
Taiwan Fresh Banana Importers Association (25 companies) (Taiwan bananas)		0.77%

Table C-10 Imports to Japan, by Trading Partner

(1,000 tons, %)

	1970		1975		1980	
		Share		Share		Share
Philippines	55	6.5	763	85.3	642	88.4
Taiwan	214	25.4	97	10.9	83	11.4
Ecuador	469	55.6	31	3.5	1	0.1
Costa Rica	91	10.8	2	0.2	-	-
Others	15	1.8	1	0.1	-	-
Total	844	100.0	894	100.0	726	100.0

Source: Ministry of Finance, Government of Japan

7. Other Importing Countries

As shown above, there exists the following relationship between banana exporters and importers:

a. Central American countries	Most to the United States; some to Europe
b. Caribbean countries	Former French colonies —— France Former British colonies —— the UK
c. South America	Nearly half the United States; some to Europe; also to Eastern Europe, and New Zealand
d. Asia	Most to Japan; some to Middle East
e. Africa	To former suzerain countries in Europe

Of those importing countries which have not been mentioned above, the suppliers to Saudi Arabia, where banana imports have recently soared, and to the German Democratic Republic and the USSR will be discussed below.

Of Saudi Arabia's banana imports in 1980, 80% out of a total of 180,000 tons was imported from the Philippines. Ecuador, which accounts for 16%, follows the Philippines. In 1981, however, imports from Ecuador increased to 50,000 tons, accounting for about 30% of the total imports.

The German Democratic Republic has recently become the largest importer in Eastern Europe, with Ecuador, the major partner, accounting for 73% of total imports in 1980.

The USSR is not one of the main importing countries, but its share is included for the sake of forecasting future trends. Banana imports into the USSR in 1980 were 60,000 tons, of which 56% came from Ecuador and 32% from Colombia, once again reflecting the high share controlled by the South American countries.

D. PRICE TRENDS

1. Production Costs

Costs and price are crucial as determinants of banana demand. This section deals with production costs.

Production costs are divided into three parts: all costs incurred prior to harvesting, costs incurred between harvesting and shipping, and costs incurred between shipping and point of sale. The following discussion concerns with the former cost.

Table D-1 shows the costs in seven main countries from 1971 to 1981 on the basis of FAO data. The increase in costs during this decade was considerable as a result of the two oil crises.

Costs incurred in the ex-packer prices include labor wages, fertilizer and agricultural chemical costs, which seem to have been the most susceptible of the items in Table D-1 to the oil crises. In fact, the annual rate of increase of these costs is very high: more than 10% in all countries.

If the rate of the cost increases in fertilizer alone is calculated, the annual average is 26% in Colombia, and 21% in Costa Rica. Furthermore, sigatoka occurred in Central American producing countries in this period, and the costs of extermination and prevention are included in the increases. Such costs are estimated at $600-800 per ha ($0.25-$0.40 per box). This may be why ex packing place prices in the three Central American countries shown in Table D-1 are slightly higher in their rate of increase than the two South American countries and the two islands in the Caribbean belonging to France.

Banana production for export is conducted by the following four systems up until the packing stage:

a. Large-scale management and direct export

b. Large-scale management that cultivates under contract with multinational companies

c. Small-scale management that cultivates under contract with multinational companies

d. Producers exporting with the cooperation of governmental trade organizations

Table D-1 Production Costs in Seven Main Countries

(US$/ton, %)

	Costa Rica			Guatemala			Honduras			Panama		
	1971	Middle of 1981	Average growth rate	1971	Middle of 1981	Average growth rate	1971	Middle of 1981	Average growth rate	1971	Middle of 1981	Average growth rate
Ex-pack cost	44	140	12.3	43	160	14.0	42	140	12.8	44	152	13.2
Package cost	3	8	10.3	2	7	13.3	3	8	10.3	4	9	8.4
Carton price	20	40	7.2	21	40	6.7	22	38	5.6	23	40	5.7
Transportation cost	5	13	10.0	4	10	9.6	4	12	11.6	1	12	28.2
Shipping cost	4	13	12.5	4	10	9.6	4	10	9.6	4	12	11.6
Export tax	1	55	49.3	-	28	39.5	-	28	39.5	-	33	41.9
Other costs	2	11	18.6	2	5	9.6	6	9	4.1	2	7	13.3
Total FOB cost	79	280	13.5	76	260	13.1	81	245	11.7	78	265	13.0
FOB revenue	95	300	12.2	90	280	12.0	95	265	10.8	92	280	11.8

	Ecuador			Colombia			Guadeloupe/Martinique		
	1971	Middle of 1981	Average growth rate	1971	Middle of 1981	Average growth rate	1971	Middle of 1981	Average growth rate
Ex-pack cost	35	100	11.1	39	110	10.9	82	219	10.3
Package cost	2	8	14.9	2	12	19.6	4	15	14.1
Carton price	18	45	9.6	19	50	10.2	28	60	7.9
Transportation cost	4	11	10.6	2	13	20.6	6	10	5.2
Shipping cost	4	15	14.1	4	14	13.3	20	29	3.8
Export tax	10	-	-	1	1	0.0	-	-	-
Other costs	5	11	8.2	2	10	17.5	10	33 *	12.7
Total FOB cost	78	190	9.3	69	210	15.5	150	366	9.3
FOB revenue	85	210	9.5	77	255	12.7	157	384	9.4

* Including personnel costs, port charges and taxes.

Source: FAO

As a result, the contractual price varies with the parties to the contract, thereby distorting the proportion of producers' profits to costs from one year to the next.

The annual average rate of increase in package, transportation and shipping costs was 10% in the past decade, which almost corresponds to the rate of increase in prices in these countries.

In the case of Central American countries, the marked difference between pre- and post-oil crisis costs is the export tax added to FOB cost after the oil crisis. Four Central American countries (Guatemala, Honduras, Costa Rica and Panama) which had spiralling FOB costs imposed a new and higher export tax on bananas. It is necessary for the government to adopt such policies in the face of economic difficulties and changes in financial systems as a result of the oil crises. Thus, all countries have aimed at increasing revenues as a matter of course. In this context, Ecuador abolished its banana export tax in 1972 when it began to export oil.

In comparison to the increased FOB costs relative to FOB revenue in the same period, the rate of increase of the former is higher than that of the latter in almost all countries, and only Ecuador and the West Indian islands belonging to France showed higher rate of increases in revenue than that in costs.

The costs incurred by West Indian islands in French possession exceeded those of other countries in most cost items, with FOB costs being double that of any other country. This is because labor conditions (including wage levels) are the same in the dependencies as they are in France itself. Thus, it may be said that these two islands have survived as banana exporters only because they sell in a protected market to France.

II. Imports, Wholesale and Retail Prices

Tables D-2, D-3 and D-4 show the import price, wholesale price and retail price, respectively, of bananas in six main importing countries.

There is a close relation between import price, wholesale price and retail price. The country with the highest price increases in the period 1970-1981 among these six countries is Italy, where the price rose at an annual rate of 15%. Only the price of bananas did not rise much, because the overall wholesale price rose at an annual rate of 15%, and consumer price rose 14%.

In other European countries and the United States, it seems that changes in the price of bananas at different times in the past ten

Table D-2 Banana Import Prices in the Main Countries
(Index: 1975 = 100)

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	Annual average increase rate (%)
France Martinique → France	61	63	65	69	80	100	104	114	119	131	142	161	9.2
Germany, FR Ecuador → Hamburg	83	76	72	67	83	100	106	106	92	98	129	159	6.1
Italy													
Somalia → Italy	59	63	66	68	84	100	126	127	147	179	229	245	13.8
Honduras → Italy	60	61	65	68	83	100	125	127	159	185	235	283	15.1
USA Central & South America → New York	68	57	65	67	75	100	105	110	116	133	153	164	8.3
UK Jamaica → UK	46	48	51	62	77	100	105	124	135	144	159	-	13.2
Japan	116	94	81	68	78	100	105	99	84	97	106	122	(0.4)

Note : The average increase for Japan is parenthesized because there was no constant increase in Japan.

Source: FAO

Table D-3 Wholesale Prices of Bananas in the Main Countries
(Index: 1975 = 100)

		1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	Annual average increase rate (%)
France		67	68	69	71	83	100	103	112	119	131	140	160	8.2
Germany, FR	Chiquita	59	79	77	75	88	100	94	103	92	100	124	140	8.2
	Others	-	79	78	74	88	100	92	102	86	90	120	135	5.5
Italy	Rome	57	63	65	64	84	100	113	125	154	190	226	249	14.3
	Milano	53	55	59	61	-	100	115	124	150	171	224	266	15.8
USA		65	62	69	72	79	100	101	106	114	133	153	-	8.9
UK		49	51	52	66	79	100	106	130	136	145	159	168	11.9
Japan		99	81	68	70	96	100	106	106	94	100	113	123	2.0

Source: FAO

Table D-4 Retail Prices of Bananas in the Main Countries
(Index: 1975 = 100)

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	Annual average increase rate (%)	Ref: Overall consumer price increases (%)
France	149	148	147	153	87	100	250	270	286	317	342	391	9.2	10.0
Germany, FR	88	82	80	80	90	100	96	103	93	97	120	140	4.3	5.2
Italy	56	58	59	65	82	100	126	131	147	165	212	250	14.6	14.2
USA	68	63	67	70	79	100	100	109	120	140	161	171	8.7	8.1
UK	48	49	59	66	81	100	103	125	136	148	168	175	12.5	13.5
Japan	111	94	80	79	99	100	111	113	105	111	126	133	1.7	8.6

Source: FAO

years were not much different from trends in the price rises of other commodities, in terms of overall price indexes.

In one country, namely Japan, however, the price of bananas was unstable from year to year, and in some years it fell below that of the previous year.

Japan's banana consumption reached a peak in 1972, and since then has tended to decrease. However, despite the downturn, banana imports continued to create surpluses, which resulted in prices being lower than or at least equal to the prices that existed before the oil crisis. Moreover, in developed countries, cheaper bananas do not always necessarily lead to an increase in consumption. Since the Japanese, for example, have the custom of enjoying seasonal fruits in their respective seasons, they are not inclined to eat bananas which are sold at fruit shops regardless of the time of the year.

Next, let us look at details of the retail prices in three countries —— France, the Federal Republic of Germany and the United Kingdom —— using OECD data (Table D-5).

As already shown, FOB costs in France are higher than in other countries and the FOB cost component in the retail price is very high, about one third, whereas it is only about one fourth in other countries. This is due to the fact that France imports bananas from special overseas areas.

Concerning freight costs and insurance premiums, the Federal Republic of Germany incurs considerable expense because of its distance from Ecuador, although the proportion of such costs in the retail price is a little higher in the United Kingdom (in 1981). The country where importers obtain high margins is the Federal Repulic of Germany and the country where ripeners obtain high margins is France. The margin for retailers is highest in the Federal Repulic of Germany (1981 figures).

If the proportions of various margins in the retail prices are looked at in terms of changes from 1970 to 1981, it is noticeable that the proportion of freight costs and premiums rose (therefore, CIF rose). This may be because the rise in the price of oil caused freight costs to rise. The next section will deal with freight costs.

III. Marine Transportation and Freight

A specialized vessel called a banana boat is used to transport bananas. This banana boat was formerly ventilated to prolong the life of the banana as long as possible but almost all such boats are now "reefers", or refrigerator vessels. The temperature inside the reefer is kept at 53° - 56°F.

Table D-5 Composition of Banana Retail Price in the Main Countries [a]

(US$/ton, %)

	France [b]				UK [c]				Germany, FR [d]			
	1971		1981		1971		1981		1971		1981	
		Share		Share		Share		Share		Share		Share
FOB	157	37.2	160	34.3	108	26.3	55	20.3	81	26.9	119	24.8
Freight & premiums	42	10.0	62	13.3	57	13.9	60	22.1	48	15.9	93	19.4
CIF	199	47.2	222	47.6	165	40.1	115	42.4	129	42.9	212	44.2
Unloading cost	31	7.3	23	4.9	17	4.1	10	3.7	14	4.7	22	4.6
Importers margin (gross)	8	1.9	7	1.5	9	2.2	4	1.5	10	3.3	15	3.1
FDR price	238	56.4	252	54.1	191	46.5	129	47.6	153	50.8	249	51.9
Ripening cost (gross)	84	19.9	72	15.5	90	21.9	47	17.3	43	14.3	54	11.3
Ripeners selling price	322	76.3	324	69.5	281	68.4	176	64.9	196	65.1	303	63.1
Retail margin	100	23.7	142	30.5	130	31.6	95	35.1	105	34.9	177	36.9
Retail price	422	100.0	466	100.0	411	100.0	271	100.0	301	100.0	480	100.0

a) Figures in this Table were deflated by overall wholesale price indexes.
b) Guadeloupe/Martinique bananas
c) Jamaica bananas
d) Ecuador bananas

Source: OECD

There are three kinds of banana boats: a. boats owned by the exporter or importer; b. chartered boats; and c. liners used regularly for the transportation of fruit.

Type "b." has two methods of use: one is the partial use of the cargo space, and the other is its entire use. Freight costs vary depending on the type of use of the boat, and the time of the cruise, and term of the charter. Needless to say, the longer the distance, the higher freight costs are.

For instance, the distance and days required on the main banana routes are shown in Table D-6.

Table D-6 Distance and Time Required on the Main Banana Routes

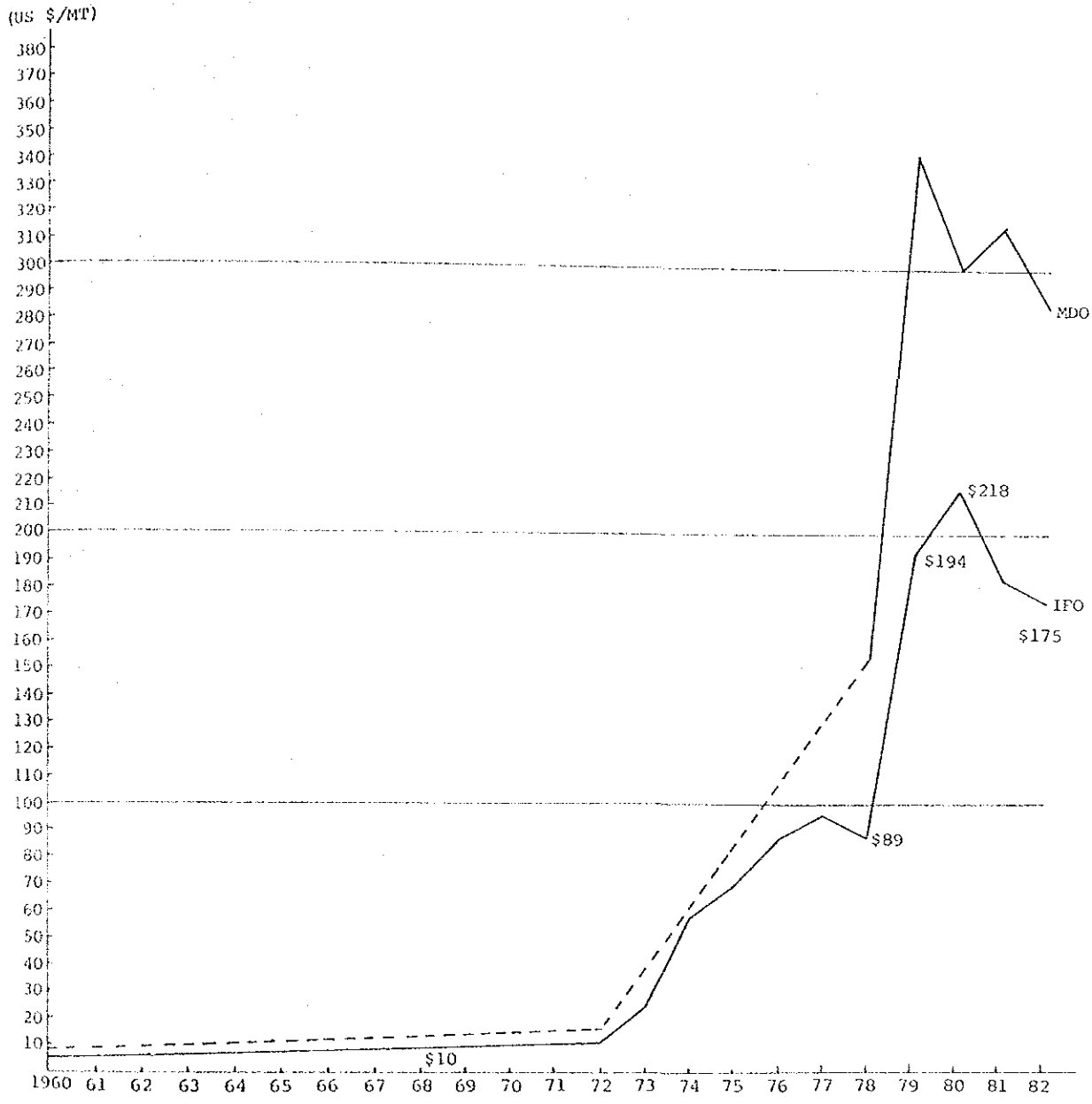
Producing country	Unloading place	Distance (miles)	Time required day - hour
Ecuador	New York	2,850	7 - 0
"	New Orleans	2,250	5 - 13
"	Germany, FR	5,800	14 - 5
"	Japan	8,000	19 - 14
Central America	New York	2,000	4 - 22
Colombia (Atlantic)	Germany, FR	4,700	11 - 12
Ivory Coast	France	3,600	8 - 19
Cameroon	France	4,450	10 - 22
Martinique	France	3,650	8 - 22
Somalia	Italy	4,400	10 - 19
Canary Is.	UK	1,850	4 - 13
Cameroon	UK	4,400	10 - 19
Jamaica	UK	3,750	9 - 4

Note : Estimation on assumption of direct service at a speed of 17 knots per hour.

Source: Inter-ocean Shipping Inc.

Another important determinant of the freight cost is fuel cost. The movement of fuel costs after the oil crisis is shown in Fig. D-1. The rise in MDO (diesel oil) was higher than that for IFO (heavy oil), but the former will not be considered here because the fuel which is at present used for boats is almost entirely IFO. IFO as of 1982 costs $175, about 20% lower than the figure of $218 at the end of 1980, when it reached a peak.

Fig. D-1 Trends in Bunker Oil Price
(Prices in Hamburg at the end of the year)



MDO: Diesel oil
IFO: Heavy oil

Source: Inter-ocean Shipping Inc.

Fig. D-2, showing trends in the average charter costs, illustrates how the cost of charter boats rises in parallel with the rapid increase in the price of fuel.

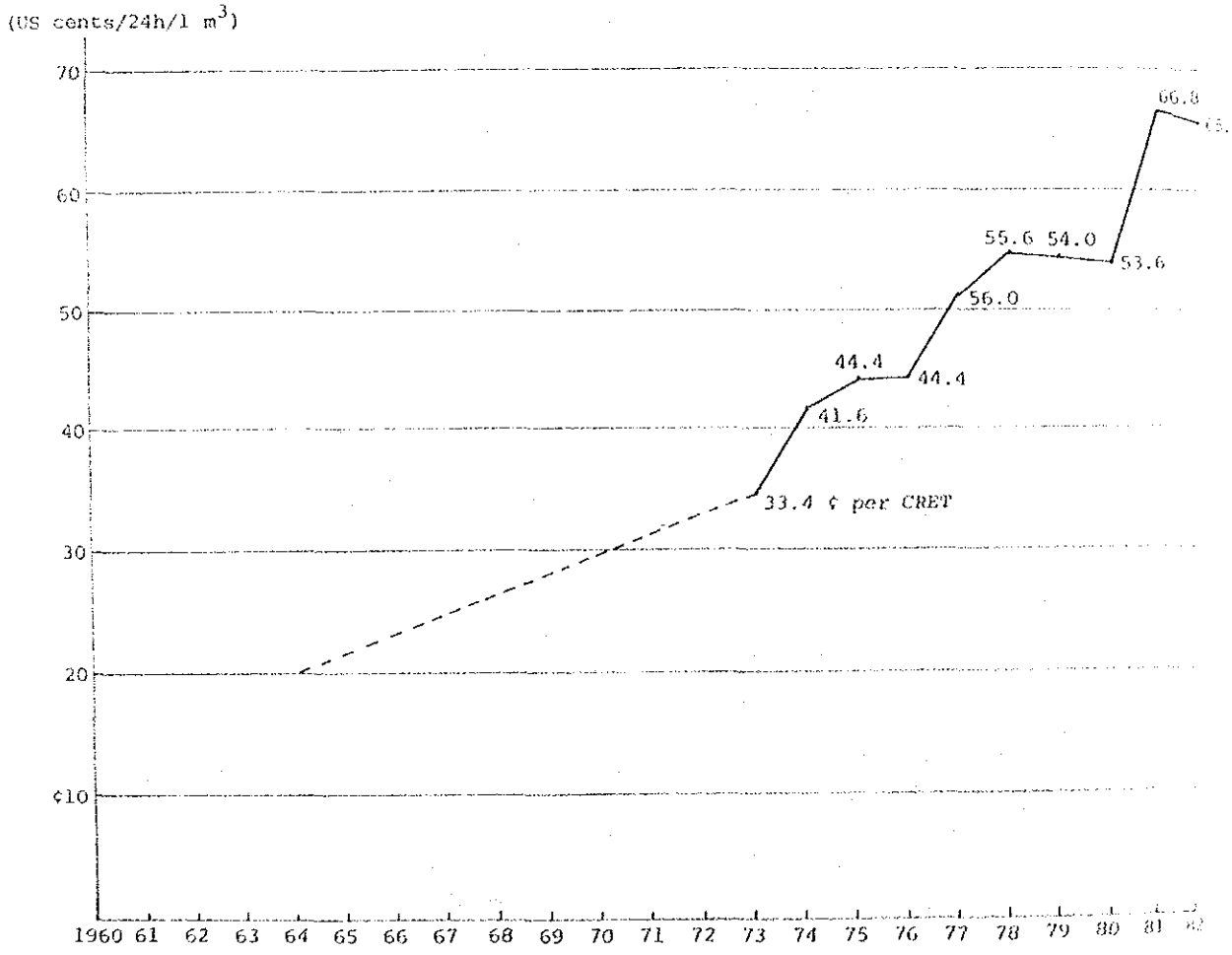
Concerning the transportation of bananas, the following points should be noted:

a. Freight cost per carton is cheaper when transported by a large vessel. However, at the same time care should be taken to avoid loss of time in loading, as well as delay of arrival of cargoes.

b. Unloading should be undertaken as quickly as possible.

c. Space should be utilized as much as possible on the return journey in the case of boats that are fully-owned or under long-term charter.

Fig. D-2 Trends in Average Charter Costs of Reefers



Source: Inter-ocean Shipping Inc.

E. DEMAND PROJECTION OF BANANA

I. Introduction

As this analysis has shown so far, the import quantities of bananas into the main consuming countries may be regarded as being almost equal to their consumption, because there is no domestic production in the main banana-consuming countries. Since the imports of the twenty-five importing countries account for around 95% of the world imports, trends in the future consumption in these countries will have a significant influence on the future potential of bananas as exportable products. In order to project future banana demand, histrical trends of per capita banana consumption in these twenty-five countries were derived, and the projected demands were compared with those of the FAO estimates [1] for 1990 and the year 2000.

II. Method of Demand Projection

Demand projections were made for the years 1985, 1990 and 2000. Each basic unit of per capita banana consumption in the twenty-five main importing countries was set in the form of a high unit (high case) and a low unit (low case) as shown in Table E-2. In determining each basic unit of per capita consumption of these countries, the following factors were taken into account on the basis of trends in per capita consumption obtained previously in this Study:

a. Whether the per capita consumption reached a peak or not in the period from 1970 to 1980.

b. Whether the relation between the per capita consumption and the increase in per capita national income in importing countries which could be expected to maintain a steady increase in consumption will follow such a pattern in the developed countries.

c. Whether the proportion of the group under twenty years of age, which is the most important age group in terms of banana demand, will rise or fall in the future in developed countries.

Although East European countries including the USSR and the oil-producing countries of the Middle East are important in terms of future trends in banana consumption, it is very difficult to forecast medium- and long-term demand, because there are insufficient basic

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1) FAO, Agriculture: Toward 2000

data available for judging the trends in the per capita consumption over time on a country basis, and also because their imports are often spot purchases which are dependent on the economic circumstances at the time. Accordingly, from among the East European countries and the oil-producing countries of the Middle East, the German Democratic Republic, Yugoslavia and Czechoslovakia (from the former) and Saudi Arabia and Iran (from the latter), which are in the group of the top twenty-five main importing countries, were selected in this demand estimation.

In order to calculate volume of world imports, it was assumed that the share of countries other than the above-mentioned would increase as a result of an overall improvement in the world economy. As such, it was estimated that the share of the top twenty-five countries in world imports would shift to 93% in 1985, to 90% in 1990, and to 85% in the year 2000.

III. Results of Demand Projection

The results of demand projection can be seen in Table E-1.

In the twenty-five main importing countries, the imports (consumption) are estimated at 6.7 - 6.9 million tons in 1985, 6.8 - 7.1 million tons in 1990, and 7.1 - 7.3 million tons in the year 2000, with an annual increase of import of about 20,000 - 30,000 tons.

In the FAO forecast, however, the imports of the top twenty-five countries (imports according to scenario A) [1] are shown as 7.1 million tons in 1990, and 7.6 million tons in the year 2000, the latter being a little higher than our projection of 7.3 million tons in the high case. This difference as shown in Table E-1 is attributed to the fact that the FAO's forecasts for developed countries and centrally planned economies are higher than ours.

On a regional basis, the volume consumed by the developed countries in the twenty-five main importing countries will tend to decrease from 89.3% in 1985 to 87.8% in the year 2000 in the high case, although their importance in the market will not diminish. Looking at the FAO's forecasts, those for developed countries may be thought to be a little too high in respect of trends in banana per capita consumption.[2] Concerning the Middle East, our projection is higher than that of FAO, which may be due to the fact that the imports of Saudi Arabia and Iran do not necessarily reflect their domestic consumption.

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1) Refer to Volume 1.

2) Some estimate that the per capita banana consumption in the United States has not yet reached its peak (see Figs. C-2 to C-7).

Finally, the present study makes a projection for the world total imports in the high case, of 7.9 million tons in 1990 and 8.6 million tons in the year 2000, whereas the FAO forecasts imports (on the basis of Scenario A for 125 countries) [1] at higher levels —— 9.2 million tons in 1990 and 9.2 million tons in 2000. If it is taken into account that our projections were made on the assumption that the proportion of the twenty-five main countries' share in the imports of bananas would move from 95% in 1980 to 93% in 1985, 90% in 1990, and 85% in the year 2000, the FAO forecast may be thought to be rather over-estimated.

Table E-1 Summary Table: Projections of Banana Demand (Import)

(1,000 tons)

	1985		1990			2000		
	Low	High	Low	High	FAO c)	Low	High	FAO c)
Developed countries a)	6,048	6,209	6,131	6,289	6,312	6,244	6,443	6,870
Latin America a)	269	284	278	293	283	301	318	207
Middle East a)	170	190	200	222	133	253	281	159
Centrally planned economies a)	237	271	246	281	381	262	299	408
Total b)	6,724	6,954	6,855	7,085	7,109	7,060	7,341	7,644
World d)	7,233	7,477	7,617	7,872	9,226	8,306	8,636	9,170

a) See Table E-2, for countries constituting each region.
b) Total regional values
c) Values were calculated by Scenario A of FAO's forecast for the same countries in each region as those in Table E-2.
d) See the text for the method of calculation of the world demand in our projection. FAO's forecasts represent total imports of 125 countries on the basis of Scenario A.

1) According to Scenario A of the FAO forecast, in 1990, the imports of ninety developing countries will be 1.843 million tons and those of thirty-four developed countries will be 7.382 million tons. By 2000, the former will be 849,000 tons and the latter 8.32 million tons.

Table E-2 Projection of Banana Demand for Top 25 Importing Countries

(consumption: kg/capita/year; demand: 1,000 tons)

	1985				1990				2000			
	Projected per capita consumption		Projected demand		Projected per capita consumption		Projected demand		Projected per capita consumption		Projected demand	
	High	Low	High	Low	High	Low	High	Low	High	Low	High	Low
Developed countries [a]	-	-	6,209	6,048	-	-	6,289	6,131	-	-	6,443	6,244
Canada	10.0	9.8	265	260	10.0	9.8	268	263	9.8	9.5	284	276
USA	9.7	9.5	2,286	2,239	9.5	9.3	2,313	2,265	9.0	8.8	2,343	2,291
Germany, FR	9.5	9.3	554	536	9.5	9.3	564	552	9.3	9.0	597	585
France	9.0	8.8	495	484	9.0	8.8	504	493	8.8	8.5	510	493
UK	6.0	5.8	336	325	6.0	5.8	342	331	6.0	5.8	348	336
Netherlands	8.5	8.3	124	121	8.5	8.3	125	122	8.3	8.0	129	124
Belgium-Luxemburg	9.0	8.8	96	93	9.0	8.8	96	94	9.0	8.8	100	98
Sweden	9.8	8.7	79	76	9.0	8.7	79	76	9.0	8.7	79	76
Switzerland	10.0	9.7	65	63	10.0	9.7	70	67	10.0	9.7	70	67
Finland	9.0	8.8	42	41	8.8	8.5	44	42	8.5	8.3	44	42
Norway	8.5	8.3	36	35	8.5	8.3	36	35	8.3	8.0	37	35
Denmark	6.0	5.8	31	30	6.0	5.8	31	30	6.0	5.8	32	31
Ireland	7.8	7.5	27	26	7.8	7.5	29	27	7.8	7.5	31	30
Italy	6.0	5.8	345	334	6.0	5.8	354	342	6.0	5.8	366	354
Spain	9.8	9.5	383	371	9.8	9.5	397	385	9.5	9.3	412	403
Portugal	5.0	4.5	46	41	5.0	4.5	53	48	5.0	4.5	57	52
Austria	10.5	10.2	81	79	10.2	10.0	76	75	10.0	9.7	76	74
Japan	6.7	6.5	820	796	6.7	6.5	823	798	7.2	6.8	928	877
Latin America [b]	-	-	284	269	-	-	293	278	-	-	318	301
Argentina	5.6	5.3	161	152	5.6	5.3	169	160	5.6	5.3	184	174
Chile	10.0	9.5	123	117	9.5	9.0	124	118	9.0	8.5	134	127
Middle East [c]	-	-	190	170	-	-	222	200	-	-	281	253
Saudi Arabia	10.0	9.0	100	90	10.0	9.0	120	108	10.0	9.0	150	135
Iran	2.0	1.8	90	80	2.0	1.8	102	92	2.0	1.8	131	118

Table E-2 (cont'd.)

(consumption: kg/capita/year; demand: 1,000 tons)

	1985				1990				2000			
	Projected per capita consumption		Projected demand		Projected per capita consumption		Projected demand		Projected per capita consumption		Projected demand	
	High	Low	High	Low	High	Low	High	Low	High	Low	High	Low
Centrally planned economies [d]	-	-	271	237	-	-	281	246	-	-	299	262
German DR	5.0	4.8	85	82	5.2	5.0	88	85	5.5	5.3	94	90
Yugoslavia	5.0	4.0	116	93	5.0	4.0	120	96	5.0	4.0	128	103
Czechoslovakia	4.5	4.0	70	62	4.5	4.0	73	65	4.5	4.0	77	69
Total			6,954	6,724			7,085	6,855			7,341	7,060
World [e]			7,477	7,233			7,872	7,617			8,636	8,306

a) Total of 18 countries
b) Total of 2 countries
c) Total of 2 countries
d) Total of 3 countries
e) Refer to text.

IV. The FAO Forecast for Banana Exports from Main Exporting Countries

Table E-3 shows the actual results and forecasts of exports of thirteen main exporting countries, data on which, mainly from Central and South American countries, are obtained from the banana export forecast by country in the FAO's Agriculture: Toward 2000.

Features of this forecast, especially in Scenario A which assumes high exports are as follows:

Firstly, the average of world exports, which was 4.4 million tons in the 1966-1968 period and 6.6 million tons in the 1979-1981 period, expanded annually at 150,000 tons in both periods. According to the above forecast, exports will expand at an average of 193,000 tons from the 1979-1981 period to 1990, when they will be 8.5 million tons; and expand on annually by 42,000 tons from 1990 to the year 2000, when they will be 8.9 million tons.[1)]

Table E-3 FAO Banana Export Forecast for Main Exporting Countries

(1,000 tons)

	Actual results [a)]			FAO estimates			
				1990 Scenario		2000 Scenario	
	1966/68	1974/76	1979/81	A	B	A	B
Ecuador	1,260	1,226	1,351	1,061	919	1,842	1,089
Colombia	346	388	704	821	849	864	951
Panama	444	481	547	609	625	746	811
Costa Rica	435	1,080	995	1,305	1,284	1,604	1,549
Honduras	858	582	901	877	812	974	824
Guatemala	94	304	335	413	405	547	538
Nicaragua	33	131	113	170	168	260	252
Jamaica	167	73	39	107	88	132	88
Philippines	-	760	884	1,349	1,328	990	964
Ivory coast	141	136	112	185	140	224	139
Cameroon	45	75	63	67	33	155	67
Total [b)]	3,823 (85.5)	5,236 (88.8)	6,044 (91.9)	6,964 (81.9)	6,651 (81.5)	8,338 (93.4)	7,272 (89.4)
World total [c)]	4,469	5,894	6,574	8,506	8,157	8,930	8,133

a) Each figure represents the yearly average over the three years.
b) Figures in parentheses represent the percentage of the world total.
c) Total of 125 countries.

Source: FAO, Agriculture: Toward 2000

1) As shown in Table E-1, the world imports are forecasted at 9.2 million tons in 1990 and in the year 2000 (Scenario A).

The total exports of the thirteen countries as a proportion of the world exports actually changed from 85.5% in the period 1966-1968 to 88.8% in the period 1974-1976, and to 91.9% in the period 1979-1981. According to the forecast (Scenario A), however, it will fall to 81.9% by 1990, and then recover to 93.4% in the year 2000. If world exports are calculated on the assumption that the total exports of the thirteen countries will be 6.9 million tons in 1990 (Scenario A) and account for 90% of the world trade, the total figure of 7.7 million tons accords with the world imports forecast for 1990, as shown in Table E-1. A looking at these data suggests that the FAO forecast exaggerates slightly the exports from areas other than the thirteen main exporting countries. Accordingly, future trends in the thirteen will be chiefly discussed here.

The total exports of the thirteen main exporters in 1990 are forecasted to be 6.964 million tons in Scenario A and 6.651 million tons in Scenario B. The annual increases of 1.4% in the former and 1.0% in the latter, will slacken in the future compared with the increase of 3.3% actually seen in the period 1979-1981. In the period 1990-2000, average growth rate is 1.8% in Scenario A and 0.9% in Scenario B, and total exports from the thirteen countries in the year 2000 are 8.338 million tons and 7.272 million tons in Scenarios A and B, respectively. In comparison with the 1979-1981 period, exports will increase by 1.15 times in 1990 and 1.38 times in the year 2000 in Scenario A, and 1.10 times in 1990 and 1.20 times in the year 2000 in Scenario B.

Looking at the figures of Scenario A, three countries are expected to export more than 1 million tons of bananas in 1990 —— Ecuador, Costa Rica and the Philippines —— whose market share will amount to 53% [1] of the thirteen main exporters. In the year 2000, although a decrease in Philippine exports is forecasted, the total exports of the above three countries are estimated at 4.436 million tons accounting for 53% of the exports from the thirteen main exporting countries (the same figure as 1990). Colombia and Honduras are expected to export more than 800,000 tons of bananas. They will be followed by Panama (exports estimated at 610,000 tons in 1990), Guatemala (410,000 tons), Ivory Coast (180,000 tons), Nicaragua (170,000 tons) and Jamaica (110,000 tons).

1) For Ecuador, the actual average exports were 1.351 million tons in the period 1979-1981, whereas Scenario A forecasts the exports at 1.06 million tons in 1990 and 1.84 million tons in the year 2000. Although the forecast for 1990 seems to be underestimated, FAO's forecasts are used here without making any compensation for this suspected underestimation.

F. CONCLUDING REMARKS

World banana production has been stable at a level between 30 and 40 million tons during 1970s with a tendency of slight increase, and this tendency is unlikely to change dramatically in the future.

On the other hand, demand, which is generally sluggish, has already reached a ceiling especially in the developed countries. Although newly industrializing countries (NICs), East European countries including the USSR, and the Middle East countries can be expected to increase their consumption of bananas in the future, it is suspected that their purchasing power may be dependent on their foreign currency holdings. Taking all this into consideration, the world banana market, in terms of supply and demand, is likely to be rather lax in the future.

Eight countries today are responsible for 70% of world exports. It cannot be assumed, however, that this share will remain constant. This is illustrated by the experiences of rapid growth of Philippine exports and the recent withdrawal of multi-national companies from Central and South America.

Thus, although the world banana market is rather slack, there nevertheless seems to be a possibility for a new banana producing country to make inroads into the international market in the future as long as certain conditions are met. These include the suitability of climate and soil for banana cultivation, selecting the producing areas near loading ports, and the prospects in terms of competitiveness in the international market, the cost such as newly developing land for cultivation, labor costs and infrastucture costs.

Besides, the actions of multi-national companies, which have had a substantial influence on banana production and exports, will need to be watched carefully in the future.

Appendix Table 1 Area, Yield, Production, Exports, Domestic Consumption of Bananas by Country

(area: 1,000 ha; yield: kg; production, exports & domestic consumption: 1,000 tons)

	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
Ecuador																	
Area	210	187	203	180	180	194	181	171	162	152	110	107	101	77	68	70	95
Yield	15,700	15,800	15,600	15,000	15,000	15,041	15,150	15,120	15,416	17,634	23,160	23,960	24,375	28,000	30,076	32,194	22,505
Production	3,304	2,956	3,163	2,963	2,700	2,911	2,743	2,582	2,496	2,676	2,544	2,571	2,451	2,152	2,032	2,269	2,138
Exports	1,200	1,265	1,263	1,252	1,190	1,364	1,351	1,377	1,370	1,357	1,362	1,201	1,261	1,363	1,386	1,318	1,247
Domestic consumption	2,104	1,691	1,900	1,441	1,510	1,547	1,392	1,205	1,126	1,319	1,182	1,370	1,190	789	646	951	891
Costa Rica																	
Area	24	24	17	18	21	39	40	40	36	36	40	42	37	39	30	30	26
Yield	23,600	16,700	30,100	39,100	46,100	29,468	31,646	31,646	33,138	31,843	30,468	28,220	30,397	25,465	35,939	36,385	43,534
Production	567	399	512	703	967	1,146	1,250	1,250	1,198	1,151	1,221	1,187	1,125	1,149	1,078	1,092	1,144
Exports	316	359	371	553	695	856	856	1,078	1,179	1,038	1,105	970	961	955	965	888	900
Domestic consumption	251	40	141	150	272	290	394	172	19	113	116	217	164	194	113	204	244
Philippines																	
Area	56	58	58	58	58	235	227	244	250	212	233	299	300	284	326	318	320
Yield	12,200	13,200	13,500	12,900	13,100	3,810	4,556	4,021	4,044	5,834	7,227	10,271	8,146	11,098	12,778	12,523	12,500
Production	683	765	781	747	760	896	1,035	980	1,013	1,236	1,686	3,068	2,447	3,156	4,162	3,977	4,000
Exports	0	0	1	0	23	55	185	422	466	663	823	764	841	834	859	923	850
Domestic consumption	683	765	780	747	737	841	850	558	547	573	863	2,304	1,606	2,322	3,303	3,054	3,150
Colombia																	
Area	58	58	58	59	61	59	60	62	66	68	69	72	72	72	72	75	76
Yield	11,300	12,400	13,200	13,100	13,100	13,335	13,325	13,327	13,636	14,029	15,217	15,278	15,278	15,278	15,278	16,000	16,105
Production	653	721	764	770	800	780	804	828	900	954	1,050	1,100	1,100	1,100	1,100	1,200	1,229
Exports	254	311	326	295	309	257	235	195	214	332	390	457	561	592	635	786	830
Domestic consumption	399	410	438	475	491	523	569	633	686	622	660	643	539	508	465	414	399
Honduras																	
Area	66	65	65	66	68	41	46	49	38	30	37	37	38	40	40	41	41
Yield	16,600	15,400	18,400	19,000	19,900	32,516	33,231	33,050	39,995	42,358	21,241	29,026	32,501	32,064	32,500	32,435	32,439
Production	1,090	1,000	1,195	1,255	1,350	1,348	1,521	1,619	1,504	1,277	783	1,074	1,235	1,267	1,300	1,330	1,330
Exports	527	739	783	856	786	807	1,000	820	850	640	370	612	695	712	895	867	820
Domestic consumption	563	261	412	399	564	541	521	799	654	637	413	462	540	555	405	463	510

Appendix Table 1 (cont'd.)

(area: 1,000 ha; yield: kg; production, exports & domestic consumption: 1,000 tons)

	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
Panama																	
Area	34	34	34	45	45	210	210	210	210	210	215	215	215	215	215	220	226
Yield	17,000	17,200	17,400	21,100	20,000	4,709	4,822	4,707	4,589	4,651	4,602	4,684	4,780	4,914	4,651	4,773	4,791
Production	579	586	592	949	900	989	1,013	988	964	977	989	999	1,028	1,056	1,000	1,050	1,082
Exports	334	386	485	541	589	601	590	604	538	420	486	524	524	624	572	500	625
Domestic consumption	245	200	107	408	311	388	423	384	426	557	508	475	504	432	428	550	457
Canary Is.																	
Area	10	10	11	11	11	11	13	13	13	13	13	13	12	13	14	14	13
Yield	37,600	38,500	35,500	37,600	39,300	37,901	31,947	29,461	35,054	30,907	28,651	26,968	32,246	30,165	30,074	34,675	33,083
Production	372	385	373	395	432	421	425	377	452	399	361	337	393	401	405	475	440
Exports	348	392	367	349	404	386	396	333	381	368	320	320	325	375	364	405	411
Domestic consumption	24	-7	6	46	28	35	29	44	71	39	41	17	68	26	41	70	29
Guatemala																	
Area	3	4	4	4	4	57	58	60	61	59	60	65	65	16	67	68	69
Yield	17,300	24,000	19,000	19,000	20,000	3,567	8,534	8,500	8,525	8,644	8,667	8,462	8,385	8,333	8,299	8,529	8,297
Production	52	96	76	76	80	487	495	510	520	510	520	550	545	550	556	580	573
Exports	58	77	106	135	145	180	181	258	220	250	240	257	261	249	236	352	370
Domestic consumption	-6	19	-30	-59	-65	307	314	252	300	260	280	293	284	301	320	228	203
Martinique																	
Area	10	12	10	11	12	9	9	9	9	9	9	10	10	10	9	7	9
Yield	22,000	19,100	23,500	21,800	19,200	17,204	19,355	24,731	21,113	24,731	22,175	26,929	29,000	30,500	19,818	11,025	15,556
Production	220	229	235	240	230	155	174	223	190	223	200	269	290	305	178	77	140
Exports	178	208	193	197	173	140	152	192	150	187	166	211	226	243	140	73	156
Domestic consumption	42	21	42	43	57	15	22	31	40	36	34	58	64	62	38	4	-16
Guadeloupe																	
Area	8	8	9	9	8	8	9	9	7	7	7	7	7	7	7	7	7
Yield	19,800	21,500	20,800	16,300	21,400	15,181	17,412	19,333	23,863	24,608	24,234	23,269	19,439	23,323	15,921	16,857	17,143
Production	162	180	180	140	180	126	148	174	160	165	158	151	142	170	116	118	120
Exports	78	92	78	105	103	89	107	120	114	118	111	108	106	133	91	56	118
Domestic consumption	84	88	102	35	77	37	41	54	46	47	47	43	36	37	25	62	2

Appendix Table 1 (cont'd.)

(area: 1,000 ha; yield: kg; production, exports & domestic consumption: 1,000 tons)

	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
Ivory Coast																	
Area	10	11	13	13	13	13	14	15	13	15	14	12	13	14	15	15	15
Yield	13,600	13,400	14,400	13,200	13,300	13,769	13,926	14,621	13,615	14,345	14,118	12,250	13,120	14,055	11,200	11,667	11,778
Production	138	145	187	172	172	179	188	212	177	208	152	147	164	197	168	175	180
Exports	117	127	133	131	128	136	141	164	132	158	136	97	113	140	118	121	105
Domestic consumption	21	18	54	41	44	43	47	48	45	50	16	50	51	57	50	54	75
Nicaragua																	
Area	1	1	2	2	2	3	3	13	23	23	23	23	23	24	23	24	26
Yield	8,000	14,000	17,500	17,500	14,500	6,000	5,600	4,950	5,616	6,375	6,603	6,586	6,616	6,681	6,522	6,667	6,648
Production	8	14	42	42	29	18	14	64	130	148	153	153	154	157	150	160	170
Exports	8	14	30	30	22	5	0	42	105	113	134	113	113	123	110	110	90
Domestic consumption	0	0	12	12	7	13	14	22	25	35	19	40	41	34	40	50	80
China																	
Area	13	13	13	13	13	14	14	14	14	14	15	15	15	15	15	15	15
Yield	13,100	13,100	13,100	13,100	13,900	14,286	14,643	15,714	13,571	15,000	14,828	15,068	15,306	15,541	15,667	15,789	16,079
Production	170	170	170	170	180	200	205	220	190	210	215	220	225	230	235	240	244
Exports	19	32	25	19	15	0	0	0	0	0	0	0	0	0	0	0	0
Domestic consumption	151	138	145	151	165	200	205	220	190	210	215	220	225	230	235	240	244
Taiwan																	
Area	27	37	44	44	38	39	30	23	20	16	11	11	11	10	10	9	11
Yield	16,800	14,500	14,800	14,700	15,600	11,838	15,583	16,053	20,692	21,125	18,165	19,141	23,938	18,971	22,883	23,045	20,909
Production	460	528	654	645	586	462	471	366	423	334	197	213	252	182	227	214	230
Exports	337	370	427	386	418	272	352	262	250	160	120	110	150	95	120	105	80
Domestic consumption	123	158	227	259	168	190	119	104	173	174	77	103	102	87	107	109	150
Cameroon																	
Area	25	17	17	17	17	28	28	28	34	38	38	38	39	40	40	40	40
Yield	5,600	6,900	6,800	7,100	7,100	3,341	3,404	3,419	2,500	2,452	2,533	2,632	2,821	2,750	2,500	2,425	2,374
Production	140	117	115	120	120	94	95	96	85	94	95	100	110	110	100	97	98
Exports	119	45	48	45	41	47	51	65	65	74	74	81	82	83	78	60	64
Domestic consumption	21	72	67	75	79	47	44	31	20	20	21	19	28	27	22	37	34

Appendix Table 1 (cont'd.)

(area: 1,000 ha; yield: kg; production, exports & domestic consumption: 1,000 tons)

	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
Brazil																	
Area	238	250	256	268	273	278	280	272	310	310	314	312	352	316	344	371	387
Yield	19,000	18,500	20,500	20,500	22,100	17,303	18,232	19,283	17,113	17,062	17,393	18,381	18,246	19,734	17,847	18,164	17,900
Production	4,531	4,626	5,236	5,484	6,023	4,806	5,104	5,250	5,304	5,291	5,455	5,726	6,415	6,240	6,133	6,736	6,686
Exports	216	205	171	160	163	196	176	114	139	156	147	92	112	133	129	67	55
Domestic consumption	4,315	4,421	5,065	5,324	5,860	4,610	4,928	5,136	5,165	5,135	5,308	5,634	6,303	6,107	6,004	6,669	6,631
Jamaica																	
Area	36	38	38	30	30	30	30	30	30	25	25	29	29	29	25	20	20
Yield	9,100	8,700	7,900	7,000	7,000	6,500	6,233	6,300	5,633	5,280	5,080	4,828	4,828	4,828	5,200	5,000	5,000
Production	327	330	300	210	210	195	187	189	169	132	127	140	140	140	130	100	100
Exports	200	204	195	156	153	136	128	129	109	73	71	78	76	78	69	33	19
Domestic consumption	124	126	105	54	57	59	59	66	60	59	56	62	64	62	61	67	81
Total																	
Area	829	827	852	848	854	1,268	1,252	1,262	1,296	1,237	1,233	1,307	1,339	1,271	1,320	1,344	1,396
Yield	16,230	16,020	17,110	17,470	18,410	11,998	12,677	12,621	12,249	12,922	12,900	13,776	13,604	14,604	14,447	14,799	14,258
Production	13,456	13,247	14,575	14,811	15,719	15,213	15,872	15,928	15,875	15,985	15,906	18,005	18,216	18,562	19,070	19,890	19,904
Exports	4,312	4,826	5,002	5,210	5,357	5,527	5,901	6,175	6,282	6,107	6,050	5,995	6,407	6,732	6,767	6,664	6,740
Domestic consumption	9,144	8,421	9,573	9,601	10,362	9,686	9,971	9,753	9,593	9,878	9,856	12,010	11,809	11,830	12,303	13,226	13,164

Source: FAO

Appendix Table 2 World Exports of Bananas (Selected Countries)

(1,000 tons)

	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
Ecuador	1,200.0	1,264.8	1,262.8	1,251.5	1,189.6	1,364.1	1,350.6	1,377.4	1,369.9	1,357.1	1,362.4	1,201.0	1,260.5	1,362.8	1,386.0	1,318.2	1,246.8
Costa Rica	316.0	358.7	371.0	553.3	694.6	856.0	865.0	1,078.0	1,178.5	1,037.6	1,105.1	970.3	961.3	955.2	965.3	887.7	900.0
Philippines	0.1	0.1	0.4	0.1	23.4	55.0	185.0	422.4	465.8	663.0	822.7	764.4	840.9	834.1	858.6	922.7	850.0
Colombia	253.5	310.9	325.6	294.6	309.1	257.0	235.0	195.0	214.4	332.4	390.1	457.4	560.6	592.2	635.0	785.8	830.0
Honduras	527.3	739.0	782.6	855.7	786.4	806.6	1,000.0	820.0	850.0	640.0	370.0	612.0	695.0	712.1	895.0	866.5	820.0
Panama	334.0	385.6	484.6	541.3	589.0	600.5	590.0	603.7	537.7	419.6	481.3	523.8	524.0	624.4	572.0	500.0	625.0
Canary Is.	348.2	392.0	366.7	349.1	404.2	386.4	395.7	333.0	380.9	368.0	320.0	320.0	325.0	375.0	364.1	405.0	410.5
Guatemala	58.0	76.7	105.6	135.3	144.6	180.3	180.5	258.0	220.0	250.0	240.2	257.0	261.3	249.1	236.3	352.0	370.0
Martinique	177.7	207.5	192.7	197.4	173.2	139.9	152.4	192.0	150.0	186.6	165.6	211.1	225.5	243.4	140.0	73.0	156.0
Guadeloupe	78.2	92.0	78.0	105.1	103.0	89.0	107.0	120.0	114.2	118.2	111.4	108.1	105.6	132.9	90.9	56.0	118.0
Ivory Coast	116.8	127.0	132.9	130.8	127.8	136.3	141.1	164.3	131.7	157.9	135.5	96.5	112.8	139.8	118.0	121.0	105.1
Nicaragua	7.7	13.6	29.6	30.1	22.0	5.0	-	42.0	105.0	113.0	134.0	113.0	113.0	123.0	110.0	110.0	90.0
China	19.0	32.2	25.0	19.0	15.3												
Taiwan	337.4	370.4	426.8	385.5	417.7	272.1	352.2	262.0	250.0	160.0	120.0	110.0	150.0	95.0	120.0	105.0	80.0
Cameroon	119.1	44.7	48.2	44.8	40.8	47.0	51.0	65.0	64.5	74.0	74.3	81.3	82.3	83.0	78.3	59.5	63.7
Brazil	215.7	204.8	171.0	160.1	162.8	195.7	176.3	114.2	138.5	156.0	147.4	92.1	111.7	132.5	128.5	67.3	55.0
Jamaica	203.0	203.6	194.5	155.6	152.4	136.4	127.9	129.0	109.4	72.5	71.3	78.0	76.2	77.9	68.8	33.1	18.8
Total	4,311.7	4,823.6	4,998.0	5,209.6	5,356.9	5,527.3	5,909.7	6,176.0	6,280.5	6,105.9	6,051.3	5,996.0	6,405.7	6,732.4	6,766.8	6,662.8	6,738.9
%	88	90	91	90	91	92	92	92	93	93	94	93	94	94	94	96	95
World total	4,895.3	5,375.8	5,513.6	5,757.4	5,874.5	5,999.5	6,395.5	6,689.0	6,741.0	6,575.1	6,446.7	6,432.8	6,817.5	7,165.8	7,163.6	6,956.4	7,058.8

Source: FAO

Appendix Table 3 World Imports of Bananas (Selected Countries)

(1,000 tons)

	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
USA	1,565.3	1,617.6	1,635.2	1,667.4	1,631.6	1,615.0	1,698.6	1,705.0	1,743.0	1,791.0	1,724.3	1,902.6	1,917.4	2,037.1	2,140.2	2,147.5	2,283.1
Japan	357.6	416.2	481.1	637.8	738.6	843.9	988.5	1,062.9	931.1	847.4	884.6	832.2	824.9	804.1	790.1	726.1	707.9
Germany, FR	585.0	606.2	605.2	565.9	549.1	517.3	631.9	664.8	676.0	589.1	547.9	554.4	583.6	617.0	603.3	533.6	522.9
France	399.3	460.4	444.0	430.7	449.1	436.3	456.5	506.5	479.9	490.1	479.9	456.1	499.9	499.6	441.1	446.0	470.1
Spain	244.5	300.0	314.3	304.9	369.2	347.8	361.3	315.0	375.2	362.0	320.0	300.0	300.0	372.0	363.0	405.4	409.7
UK	376.3	369.2	327.4	323.9	329.1	325.1	315.5	307.6	281.7	304.0	307.1	307.0	296.6	310.6	304.9	318.8	332.0
Italy	316.6	322.4	318.6	324.6	321.3	312.4	323.0	350.8	352.7	315.7	304.4	268.3	304.7	346.7	327.8	300.7	306.6
Canada	167.0	174.9	181.9	194.3	192.9	199.4	207.3	207.3	214.9	220.7	212.4	238.6	231.2	236.2	249.2	245.8	260.2
Saudi Arabia	11.8	14.4	15.5	14.0	21.8	22.4	32.7	36.0	14.0	20.0	36.6	44.9	68.1	66.0	91.8	184.0	182.0
Argentina	190.6	173.3	160.8	158.4	142.9	166.0	183.0	99.6	133.1	154.0	122.6	70.6	99.6	112.3	176.1	195.2	153.0
Chile	28.2	63.7	75.4	74.6	82.0	75.1	74.8	66.0	55.8	54.0	28.0	34.0	50.0	56.0	80.0	97.1	122.4
Netherlands	81.3	99.6	100.2	97.9	88.5	80.9	101.3	118.0	121.1	116.7	111.2	113.4	120.5	122.9	126.4	114.1	109.5
Belgium-Luxemburg	79.7	98.3	93.1	77.6	74.1	73.2	84.0	95.2	94.2	89.2	88.0	86.2	91.3	93.6	90.5	87.0	85.0
German DR	15.0	20.0	28.0	45.0	45.0	31.0	45.0	98.0	100.0	100.0	140.0	80.0	120.0	120.0	120.0	80.0	82.0
Austria	47.6	56.5	55.8	59.2	59.5	56.8	66.1	75.9	81.4	70.7	67.6	72.1	78.2	93.9	86.2	76.9	75.0
Sweden	53.3	57.3	66.3	74.2	71.0	66.4	78.1	78.9	83.1	75.0	72.7	73.1	75.2	79.3	73.6	70.0	72.1
Switzerland	56.1	60.8	59.4	59.3	61.0	59.2	63.0	68.1	71.7	68.6	64.8	58.2	60.8	63.8	62.9	63.8	58.4
Yugoslavia	14.5	20.4	37.5	36.2	32.5	42.1	52.6	52.8	64.8	89.8	94.4	103.6	136.3	132.9	124.4	72.1	55.1
Czecho-slovakia	14.0	17.8	20.1	32.0	37.0	28.0	27.2	32.9	42.2	44.5	57.9	64.6	63.2	72.2	66.6	49.6	47.6
Portugal	31.5	32.5	32.0	48.0	55.0	65.0	78.0	82.0	87.0	93.0	50.0	60.0	50.0	45.0	45.0	45.0	45.0
Subtotal	4,635.2	4,981.5	5,051.8	5,225.9	5,351.2	5,363.3	5,868.4	6,023.3	6,002.9	5,895.5	5,714.4	5,719.9	5,971.5	6,281.2	6,363.1	6,258.7	6,380.4
World %	93.7	93.2	93.4	94.1	93.8	93.5	93.9	93.0	92.6	92.0	90.3	90.3	89.9	90.6	90.7	91.5	92.2
Finland	13.9	14.8	18.0	16.8	23.0	21.7	29.1	30.2	39.7	41.4	41.3	40.2	41.4	45.2	45.9	39.1	42.5
Norway	33.1	34.8	36.6	35.5	33.4	33.4	40.8	41.0	42.9	39.7	38.5	39.6	39.5	37.2	37.2	30.6	33.1
Ireland	17.1	15.2	16.6	17.0	19.2	20.2	24.3	25.0	26.1	25.1	24.8	33.0	37.6	23.3	24.8	23.4	24.0
Denmark	33.0	38.2	43.4	41.1	38.8	36.2	39.2	41.1	45.6	36.4	33.2	32.3	33.2	38.2	34.0	28.6	28.0
Iran	4.5	2.8	0.9	-	0.2	1.6	1.1	33.0	28.8	75.0	118.3	121.2	126.0	50.0	-	-	-
Subtotal	101.6	105.8	115.5	110.4	114.6	113.1	134.5	170.3	183.1	217.6	256.1	266.3	217.7	163.9	141.9	121.7	127.6
Grand total	4,736.8	5,087.3	5,167.3	5,336.3	5,465.8	5,476.4	6,002.9	6,193.6	6,186.0	6,113.1	5,970.5	5,986.2	6,189.2	6,445.1	6,505.0	6,380.4	6,508.0
World %	95.7	95.2	95.6	96.0	95.8	95.4	96.1	95.6	95.4	95.4	94.4	94.6	93.2	93.0	92.7	93.3	94.1

Source: FAO

Appendix Table 4 Per Capita Imports of Bananas (Selected Countries)

(kg/year)

	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
USA	8.0	8.2	8.3	8.4	8.2	7.9	8.2	8.2	8.3	8.5	8.1	8.8	8.8	9.3	9.5	9.4	9.9
Japan	3.7	4.2	4.8	6.3	7.2	8.1	9.4	9.9	8.6	7.7	8.0	7.4	7.2	6.9	6.8	6.2	6.0
Germany, FR	9.9	10.5	10.1	9.4	9.0	8.5	10.3	10.8	11.0	9.6	8.9	9.0	9.5	10.2	9.8	8.7	8.5
France	8.2	9.4	8.9	8.6	8.9	8.6	8.9	9.8	9.2	9.3	9.1	8.6	9.4	9.3	8.2	8.3	8.7
Spain	7.7	9.4	9.8	9.4	11.2	10.3	10.6	9.1	10.8	10.3	9.1	8.4	8.3	10.2	9.8	10.8	10.9
UK	6.9	6.1	6.4	6.3	5.9	5.9	5.7	5.5	5.5	5.4	5.4	5.5	5.3	5.5	5.5	5.7	5.9
Italy	6.1	6.2	6.0	6.2	6.0	5.8	6.0	6.5	6.4	5.7	5.5	4.8	5.4	6.1	5.8	5.3	5.4
Canada	8.5	8.7	8.9	9.4	9.1	9.3	9.6	9.5	9.7	9.8	9.3	10.3	9.9	9.9	10.5	10.3	10.8
Saudi Arabia	1.7	3.1	2.2	1.9	4.2	3.4	4.1	4.4	4.8	4.7	6.1	6.1	8.9	10.1	11.3	22.0	21.4
Argentina	8.7	7.6	6.2	6.7	6.0	7.1	7.8	4.2	5.5	6.1	4.8	2.7	3.8	4.2	6.6	7.2	5.6
Chile	3.3	7.1	6.6	8.0	8.6	8.5	8.3	6.6	5.5	5.8	2.7	3.3	4.7	5.2	7.3	8.7	10.9
Netherlands	6.6	8.0	8.0	7.7	6.9	6.2	7.7	8.9	9.0	8.6	8.2	8.2	8.7	8.8	9.0	8.1	7.7
Iran						0.1		1.1	0.9	2.3	3.6	3.8	3.8	1.4	-	-	-
Belgium-Luxemburg	8.1	10.3	9.4	7.8	7.4	7.3	8.4	9.5	9.3	8.8	8.6	8.5	9.0	9.1	9.2	8.8	8.6
German DR	0.9	1.2	1.6	2.6	2.6	1.8	2.6	5.8	5.9	6.5	8.2	4.3	7.2	6.9	7.2	4.8	4.9
Austria	6.6	7.8	7.6	8.1	8.1	7.7	8.9	10.1	10.8	9.4	9.0	9.6	10.4	12.4	11.5	10.2	10.1
Sweden	6.9	7.3	8.4	9.4	8.9	8.2	9.6	9.7	10.2	9.2	8.9	8.9	9.1	9.4	8.9	8.4	8.7
Switzerland	9.4	10.1	9.8	9.6	9.8	9.5	10.0	10.7	11.1	10.6	9.9	9.2	9.6	10.0	9.9	10.0	9.2
Yugoslavia	0.7	1.0	1.9	1.8	1.6	2.0	2.6	2.5	3.1	4.2	4.4	4.8	6.3	6.1	5.6	3.2	2.4
Czecho-slovakia	1.0	1.2	1.4	2.2	2.6	2.0	1.9	2.3	2.9	3.0	3.9	4.3	4.2	4.8	4.4	3.9	3.1
Portugal	3.4	3.5	3.4	3.7	5.8	7.4	9.1	9.6	10.2	10.7	5.7	6.8	5.7	5.1	4.6	4.5	4.5
Finland	3.0	3.2	3.6	3.6	4.9	4.7	6.2	6.5	8.5	8.8	8.8	8.5	8.7	9.5	9.6	8.2	8.9
Norway	8.9	9.3	9.7	9.3	8.7	8.6	10.5	10.4	10.8	9.9	9.6	9.8	9.7	9.1	9.1	7.5	8.1
Denmark	6.9	8.0	9.0	8.4	7.9	7.3	7.9	8.2	9.1	7.2	6.5	6.4	6.5	7.5	6.6	5.6	5.5
Ireland	5.9	5.3	5.7	6.9	6.6	6.8	8.2	8.3	11.3	11.3	7.9	10.4	11.8	7.2	7.4	6.9	7.0
Average per capita	5.6	6.3	6.3	6.5	6.6	6.5	7.3	7.5	7.9	7.7	7.2	7.1	7.7	7.8	7.8	7.7	7.7
Proportion of consumption to world production	7.33	7.98	7.94	7.66	7.33	7.05	7.89	8.44	8.85	8.24	7.51	7.68	8.20	7.76	7.67	7.18	7.20

Source: FAO

Appendix Table 5 Total Fruit per Capita of Bananas (World)

(kg/year)

	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978
USA	68.9	68.9	68.8	70.2	68.8	71.0	72.3	71.7	69.8	69.3	74.1	75.5	74.1	75.0
Japan	28.6	32.2	33.1	38.3	36.7	38.3	37.8	44.2	43.7	41.5	43.1	39.9	41.5	40.5
Germany, FR	99.3	105.3	111.5	115.0	117.8	116.5	119.9	111.9	117.8	102.6	112.1	112.0	99.9	114.5
France	68.3	70.5	72.2	76.3	75.0	22.9	71.4	76.5	80.2	71.3	74.2	78.1	69.9	72.9
Spain	105.5	105.6	90.5	97.8	111.8	86.5	107.4	128.7	131.2	129.0	131.1	131.8	106.3	128.8
UK	48.7	47.2	46.7	47.5	47.8	49.2	48.4	51.2	50.4	45.9	46.5	47.3	44.0	47.2
Italy	101.0	114.9	109.9	112.7	108.3	104.3	112.7	97.4	110.7	104.0	100.4	103.4	97.9	101.2
Canada	65.1	66.1	66.9	68.6	71.5	68.3	72.2	70.5	75.4	74.3	80.1	85.9	83.6	85.7
Netherlands	72.1	79.7	91.1	87.5	92.1	85.7	88.5	95.9	113.7	97.6	110.9	140.7	129.9	131.0
Belgium-Luxemburg	61.6	68.3	66.0	67.3	79.7	79.3	79.7	77.1	75.9	70.1	74.7	77.7	68.3	83.1
Sweden	70.0	71.8	75.4	78.6	77.5	80.3	81.8	78.7	77.4	76.6	81.3	81.4	79.1	76.8
Switzerland	110.3	115.2	122.7	103.5	122.3	113.6	115.6	120.2	120.8	111.4	122.3	108.1	113.7	113.3
Yugoslavia	48.9	64.8	68.9	64.8	76.7	64.3	57.9	57.6	62.2	56.2	65.6	71.0	67.6	64.7
Portugal	97.2	83.5	99.4	93.9	98.3	105.9	101.6	81.1	83.9	80.2	77.5	22.2	52.8	-
Norway	63.1	63.9	63.1	69.4	66.5	66.5	71.2	71.4	73.0	72.8	72.1	78.0	73.5	80.0
Ireland	40.0	42.3	43.1	42.6	45.8	49.5	47.7	43.3	41.0	39.1	40.6	40.9	41.0	61.4
Denmark	60.5	61.7	60.8	60.6	61.3	60.9	58.4	55.9	59.7	51.9	50.4	52.4	47.3	53.3
New Zealand	62.3	60.5	63.0	63.1	56.7	64.5	61.5	67.4	77.9	85.4	78.3	71.5	73.3	
Austria	75.8	75.8	75.8	75.8	75.8	75.8	83.4	76.6	78.9	78.9	88.8	-	-	-
Finland	47.1	47.1	47.1	47.1	47.1	47.1	49.2	48.9	49.7	66.5	69.1	-	-	-
Simple average	69.7	72.3	73.8	74.0	76.9	72.5	76.9	76.3	79.7	76.2	79.7	78.8	75.8	83.1

Note : Some countries' figures include canned fruit, dry fruit and frozen fruit juice.

Source: OECD, Food Consumption Statistics, 1981

Appendix Table 6 Import Prices of Bananas (Selected Countries)

	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
France (Fr/kg) (Martinique for France)	1.23	1.20	1.21	1.19	1.23	1.25	1.29	1.34	1.42	1.65	2.05	2.14	2.33	2.43	2.68	2.91	3.31
Germany, FR (DM/ton) (Ecuador for Hamburg)	623	544	552	525	518	568	525	498	458	570	688	730	730	631	671	890	1,093
Italy (Lira/kg)																	
(Somalia for Italian ports)	(US$/t 190	" 177)	167	173	177	206	219	229	237	292	349	440	444	512	623	800	856
(Honduras ")			209	218	219	231	235	249	259	319	383	480	485	610	708	900	1,085
USA (US$/40 lbs) (Central and South America for importer to wholesaler New York)	2.89	2.79	2.88	2.77	2.91	3.04	2.54	2.93	2.99	3.34	4.48	4.71	4.95	5.21	5.94	6.85	7.33
UK (new Pence/kg) (Jamaica, green boat price)	(US$/t 171	" 164	" 167	" 147)	7.8	7.9	8.3	8.7	10.7	13.3	17.2	18.0	21.3	23.2	24.7	27.3	
Japan (yen/kg) (CIF)	(US$/t 170	" 156	" 156	" 158)	56.8	61.5	49.6	42.8	35.9	41.3	53.0	55.4	52.3	44.6	51.4	56.0	64.6

Source: FAO

Appendix Table 7 Wholesale Prices of Bananas

	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
France (Fr/kg)	1.56	1.54	1.52	1.56	1.64	1.76	1.79	1.81	1.86	2.17	2.63	2.70	2.95	3.12	3.44	3.69	4.22
Germany, FR (DM/ton)																	
Chiquita	-	-	-	522	518	568	761	740	723	851	963	907	996	886	962	1,192	1,350
Others	-	-	-	-	-	-	704	693	657	787	893	823	908	771	805	1,071	1,203
Italy (Lira/kg)																	
Rome (Somalia, Poyo)		199	219	186	191	226	248	257	254	331	395	446	494	609	750	891	982
Milano (other origins)		272	272	262	268	283	298	320	328	-	539	618	666	811	922	1,207	1,434
USA (US$/40 lb box)																	
(Central and South America)			4.18	4.32	4.24	4.05	3.83	4.32	4.50	4.93	6.22	6.26	6.63	7.09	8.31	9.55	-
New York																	
UK (new Pence/kg)	(US$/t	"	")	11.2	11.5	11.5	12.0	12.2	15.5	18.5	23.4	24.9	30.4	31.8	33.9	37.2	39.4
(Jamaica)	269	267	287)														
Japan (Yen/kg)	150	142	152	141	133	125	102	86	88	121	126	134	133	118	126	143	155

Source: FAO

Appendix Table 8 Retail Price of Bananas (Selected Countries)

	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
France (Fr/kg)																	
(Martinique) (Guadeloupe)	1.98	1.97	1.97	2.15	2.21	2.36	2.34	2.32	2.42	1.37	1.58	3.95	4.27	4.52	5.01	5.41	6.18
Germany, FR (DM/kg)																	
(Ecuador)	1.49	1.35	1.33	1.31	1.34	1.39	1.29	1.27	1.26	3.00	1.58	1.52	1.62	1.47	1.54	1.90	2.21
Italy (Lira/kg)	(US$/kg	"	")	366	376	387	400	411	449	567	693	873	907	1,017	1,144	1,470	1,730
	64	64	59)														
USA (Cent/kg)	35.3	34.6	34.8	34.2	35.1	35.1	32.8	34.8	36.4	40.7	51.7	51.8	56.2	62.0	72.2	83.0	88.6
UK (Pence/kg)	33.5	33.7	34.5	36.2	new P. 15.4	16.3	16.4	19.8	22.1	27.4	33.7	34.8	42.0	45.7	49.9	56.7	59.0
Japan (Yen/kg)	264	258	239	221	203	193	163	140	138	172	174	194	197	182	193	220	232

Source: FAO

[8-2] OTHER TROPICAL FRUITS

Generally speaking, fruits are perishable, and because of this, in terms of their unit production, they are expensive to ship. For this reason, they are not seriously regarded as international commodities, and consequently, international data are scarce. The following discussion, therefore, has been limited by this lack of data. Similarly, no reference is made to cashew juice in this discussion, because no data was available.

[8-2-1] MELON

A. INTRODUCTION

Melon, which is a fruit from the Cucurbitaceae plant, was originally a variety of vegetable. It first grew in African desert regions, but its evolution is not as certain as that of other fruits. The number of species in all parts of the world amount to more than 200, taking into account the native species of each producing area.

The species which are commonly traded on the international market will be discussed here.

I. Varieties

Sweet Melon

The sweet melon is golden, more than 10 cm in length and egg-shaped. When the skin is peeled, white flesh about 2 cm thick can be seen. The pulp is sweet, a little hard to masticate, but light in taste.

Cantaloup

The cantaloup is the most popular melon in the United States. It has a round shape, 10-15 cm in diameter, a vallecular surface similar to pumpkins, covered with a rough mesh. It is not very sweet and is not cultivated in Japan because of low demand.

Honeydew Melon

The honeydew melon has a white, smooth surface, is oval in shape (though some are round), with a maximum diameter of 20 cm. The milky skin is about 3 mm thick. The flesh is a beautiful vivid green. It is juicy with a sweetness like that of honey. The Californian honeydew melon is said to be the best in quality.

Casaba

The casaba is pointed like the head of a Kewpie doll, bright yellow and weighs up to 4 kg. The rind is heavily lined and the flesh is light in color, thick and rather soft, with a mild sweetness. Since it remains fresh very long (more than two months), it is, like the honeydew melon, highly valued as a winter fruit. It is produced around the Mediterranean, southern Africa and South America, and imported by the United States.

Musk Melon

The musk melon has the pleasant smell of musk, and its various species have a variety of smells.

a. Red flesh	Scarlet
	A-One
	King George
b. Blue flesh	Emerald Gem
	Ling Leader
	Royal Jubilee
c. White flesh	Hero of the Rocking
	Universal
	British Queen

In Japan, only the "Earl's Favorite" melon, whose only feature is its sweetness, is sold on market today. It is cultivated in green houses. The flowers bloom about one month after planting, and pollen is then transferred on the fingertip from the male flower to the female flower, at the eighth node from the root. Each stem bears only one piece of fruit. The fruits are harvested about forty days after artificial fertilization in summer, and after about sixty days in winter. Seeds are sown at certain intervals throughout the year and crops are harvested. The longer they grow, the richer the taste becomes. They are a very expensive fruit, being produced by hothouse culture.

B. PRODUCTION TRENDS

According to FAO statistics of melon production in forty-eight countries (Appendix Table 1), the area under cultivation has tended to expand year by year, and increased by about 50% from 321,000 ha in 1965 to 481,000 ha in 1981. The output is also growing steadily, with an increase from 3.931 million tons in 1965 to 6.625 million tons in 1981 (an increase of 69%).

The unit yield reached a high of 13,781 kg/ha in 1981. China has the greatest amount of land under cultivation (89,000 ha), followed by Spain (67,000 ha), Iran (52,000 ha), the United States (43,000 ha), and Syria (23,000 ha) (See Table B-1). As far as the unit yield is concerned, Italy has the highest productivity with 25,733 kg/ha, and Japan ranks second with 20,748 kg/ha, followed by the United States [1], China and Mexico. Thus, all of the top five countries have a higher unit yield than the world average. As for output, China is the largest producer with a volume of 1.536 million tons, accounting for about 23% of the world production. The United States comes next with 771,000 tons, or 11.6%, along with Spain (770,000 tons - 11.6%), followed by Iran (494,000 tons - 7.5%), Italy (320,000 tons - 4.8%), and Japan (305,000 tons - 4.6%). The total area under cultivation of the top ten countries (China to Italy) is 352,000 ha, accounting for 73% of the world total. In terms of production, the top ten countries (China to Morocco), account for about 77% of the world total.

I. Trends in Main Producing Countries

Since international data on melons are generally poor, trends in the countries on which data was obtainable are here referred to.

1. Trends in the United States

The area under cultivation (honeydew melons) expanded annually from 9,100 acres (3,683 ha) in 1966 to a peak of 20,500 acres (8,296 ha) in 1979, but fell to 17,700 acres (7,163 ha) in 1980. The unit yield rose from 13,400 lb/acre (about 15.02 tons/ha) to 18,000 lb/acre (about 20.18 tons/ha). Output increased from 121.6 million lb (54,720 tons) in 1966 to 318 million lb (144,244 tons) in 1980.

1) The unit yield of the United States shown in the FAO data is considerably lower than that in the USDA data.

Table B-1 Main Melon Producing Countries (1981)

Order	Area under cultivation		Unit yield			Production		
	Country	1,000 ha	Country	kg/ha	Percentage to world average(%)	Country	1,000 MT	Percentage to world production(%)
1	China	89	Italy	25,733	186.7	China	1,536	23.2
2	Spain	67	Japan	20,748	150.6	USA	771	11.6
3	Iran	52	USA	18,056	131.0	Spain	770	11.6
4	USA	43	China	17,196	124.8	Iran	494	7.5
5	Syria	23	Mexico	14,930	108.3	Italy	320	4.8
6	Mexico	20	France	12,813	93.2	Japan	305	4.6
7	France	16	Morocco	11,712	85.0	Mexico	302	4.6
8	Iraq	15	Spain	11,493	83.4	Syria	210	3.2
9	Japan	15	Iran	9,500	68.9	France	205	3.1
10	Italy	12	Syria	8,974	65.1	Morocco	155	2.3
	Total	352				Total	5,068	76.5
	Others	129				Others	1,557	23.5
	World total	481	World average	13,781		World total	6,625	100

Source: FAO

The rate of increase in the area under cultivation was about 195% in the 1966-1980 period, and the rate of increase in output was 262% in the same period, which highlights the rise in unit yield. The FOB price reached a low of US$5.82 per 100 lb (45.36 kg) in 1967, but rose to $13.50 in 1980, an increase of 232%.

Table B-2 shows the honeydew melon producing areas by season, area under cultivation, production and sales in winter. For example, in the column marked 'spring', Texan melons are shown, and in the columns for summer and fall, Arizonan melons and Californian melons are shown. The production of melons in summer has been falling and Texan melons are the most expensive.

2. Trends in Mexico

Trends in Mexican melon production are shown in Table B-3. The

Table B-2 Commercial Melon (Honeydew) Crop: Area, Production, Value per Hundredweight, and Total Value in the USA

Season and State	Area (acres)			Production (1,000 cwt)			Value per unit (US$/cwt)		
	1978	1979	1980	1978	1979	1980	1978	1979	1980*
Spring									
Texas	4,000	6,400	4,200	600	800	672	13.90	13.00	20.40
Total	4,000	6,400	4,200	600	800	672	13.90	13.00	20.40
Summer									
Arizona	1,400	1,200	1,200	224	192	174	9.02	8.30	10.40
Calif.	11,000	10,500	9,700	2,145	1,943	1,795	8.78	10.30	12.30
Total	12,400	11,700	10,900	2,369	2,135	1,969	8.80	10.10	12.10
Fall									
Arizona	220	400	400	45	72	66	7.04	9.41	7.41
Calif.	1,900	2,000	2,200	399	470	473	8.36	10.80	10.10
Total	2,120	2,400	2,600	444	542	539	8.23	10.60	9.77
USA Total	18,520	20,500	17,700	3,413	3,477	3,189	9.62	10.90	13.50

* Preliminary
Note : cwt = 100 lbs

Source: USDA

area under cultivation increased from 17,693 ha in 1971 to 18,532 ha in 1974, but slumped to 12,000 ha in 1975. The unit yield is very low compared with the figure of 15 - 20 tons per ha in the United States. The exports are increasing at an annual rate of 41 - 50%, and the domestic per capita consumption increases in years when production is high.

3. Trends in Brazil

Trends in melon production in the main producing states of Brazil are shown in Table B-4. Pernambuco accounted for 34% of the total production in 1980, and if the outputs of Bahia and Sao Paulo are added, these top four states account for 75% of the total production. The unit yield greatly varies from area to area, but Pernambuco and Sao Paulo, in particular, regularly record high figures (The data on production in 1980 are provided in Table B-5 for reference).