

**MARKET OVERVIEWS
AND COUNTRY CASE STUDIES
ON SELECTED HORTICULTURAL PRODUCTS**

THE INTERNATIONAL CONFERENCE ON HORTICULTURAL DEVELOPMENT

“SHARING EXPERIENCE WITH WINNERS”

Bombay, India
March 2-3, 1995



ICICI



Organised Under
Agricultural Commercialisation and Enterprise (ACE) Programme

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This handbook was prepared by Jason Graef, Nancy Chiriboga, Thomas Klotzbach and Claire Starkey of Fintrac Inc under the auspices of the "Agricultural Commercialisation and Enterprise Programme (ACE)" ACE is funded by the United States Agency for International Development and implemented by the Industrial Credit and Investment Corporation of India Limited in conjunction with Chemonics International, Fintrac, Inc, GIC, and MITCON Contract # 386-0521-C-00-2166-00

MARKET OVERVIEWS AND COUNTRY CASE STUDIES

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CASE STUDIES:
CHILE
ISRAEL
THAILAND

Chile: A Successful Case Study in Export Strategy Development

Following is the first in a series of three "strategy briefs" intended to provide background information to Conference participants on selected other countries' successes in horticultural export

BACKGROUND

Chile is Latin America's leading fresh fruit exporter. It has carved a niche as a major supplier of fresh fruit during the northern hemisphere's counter-season, its marketing efforts aided by the fact that it produces familiar varieties. An estimated 40% of Chilean fruit is exported to the United States, its largest market, with the European Union the second largest. Pacific Rim countries are also showing signs of becoming strong buyers. Apples, pears, and table grapes account for roughly 90 percent of total export volume.

SUCCESS FACTORS

Due to an unusual geographic span, Chile has many micro-climates, which helps ensure a continuous supply of fruit. Natural barriers have also helped control the spread of pests and disease. Cost of production is relatively low. Domestic agricultural policies, including private ownership of land and relatively equitable land taxes, have encouraged growers to utilize their land productively. Major government irrigation projects have been concentrated in the central valley region, the key fruit-growing area. Increased use of inputs such as fertilizer and pesticides have also helped spur produc-

tion. Although there is currently no government-operated extension service, active cooperation between academic, government, and private programs established during the 1960s has provided excellent technical assistance. Additionally, Chile's attention to producing quality product has been a major factor in gaining acceptance in the international market.

The level of cooperation between the public and private sectors in Chile has been unusually high, and is largely credited with Chile's export success. For example, a large portion of Chile's agriculturally-related services and facilities, while temporarily established or improved by the government, were privatized as the industry grew, and the private sector was more able to assume the financial risks. The government has minimized rules and regulations that unduly restrict foreign trade, while the private sector has strictly monitored itself in adherence to export standards. Access to foreign technology and know-how have also proven a key factor to success. Following are select summaries of major initiatives in Chile's export strategy.

GOVERNMENT INITIATIVES

The establishment of macroeconomic policies in 1974 resulted in massive privatization, deregulation, export promotion, and an overall dramatic decrease in the role of government in industry. Specific steps implemented by the government that directly affected the fruit industry include:

Labor Provided the fruit industry with the flexibility to hire according to seasonal needs,



and created a favorable climate for the industry to prosper in the absence of labor conflicts and strikes

Inland Transportation. Promoted open competition, giving exporters better negotiating power to obtain services that the industry demanded

Ocean Transportation. Provided freedom to utilize vessels other than national flag. Open competition allowed exporters to charter vessels to better serve the needs of the industry

Port Operations Stiff rules were modified to increase efficiency and provide priority handling of perishable products

Financial Services Creation in early 1980's of a transparent debt/equity swap program attracted large international companies to Chile to establish new operations and joint-ventures. Government currently provides lines-of-credit to small growers. Most banks are now private

Import/Export Tariffs. Were significantly decreased or eliminated, thus favoring imports that increased production activities, and created incentives for exports

Customs. The system was greatly simplified to accelerate the import/export process

Taxes Indirect taxes on exports were gradually decreased. Taxes applied to producers were based on assumed rather than actual profits, considerably facilitating the accounting systems and tax collection

Prices. By eliminating the fixed price policy, the government allowed prices to be established freely through supply and demand mechanisms according to quality and

quantity available

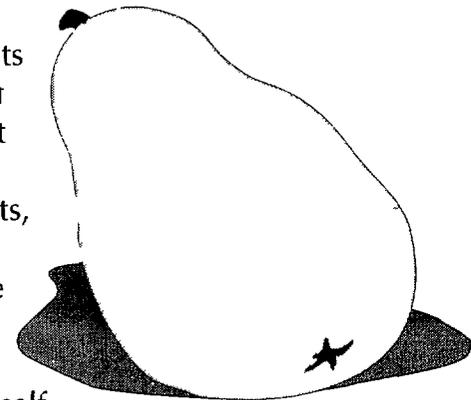
Currency Exchange. Policies were modified to give stability to the local currency, and exchange rates were adjusted daily to account for internal and external inflation

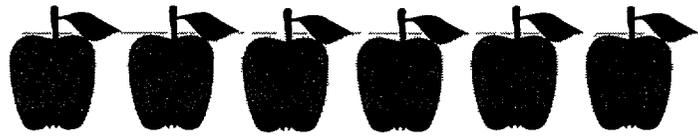
PRIVATE SECTOR INITIATIVES

Commercial Alliances and Joint-Ventures Formed between Chilean producers, exporters and multinational companies based in the U S , Europe, and the Middle East, providing easier access to foreign markets, new technology, and credit lines

Export Standards. Suggested guidelines adapted from the requirements of importing countries (i.e. USDA in the U S , Harmonized Standards in the E C) are published by Fundacion Chile (see next page) in a "Manual for Exporters of Horticultural Products " Chilean law prohibits the establishment of internal government regulations which interfere with exports, but the manual has become a substitute for official standards, and the industry regulates itself

For example, if a substandard fruit arrives at the exporter's warehouse, the fruit is rejected and returned to the grower, who must then repack the fruit or find another exporter who has a market for the quality being offered. Fruit still rejected must either be sold in the domestic market or destroyed. The refusal of exporters and buyers to handle the fruit of repeat offenders has been reasonably effective in enforcing industry adopted norms





Restructuring of Cooperatives. Copefruit, formed in 1964, was restructured as a corporation and remains among the top ten Chilean exporters of apples and kiwis

Financial Services. Several private banks specialize in providing lines of credit to fruit producers and exporters. Other types of financing (i.e. land mortgage loans, production funds) are generally arranged through non-banking institutions, individuals, and foreign sources (notably U.S. and European importers and marketing organizations)

ASSOCIATION AND AGENCY INITIATIVES

Trade Policy and Industry Promotion

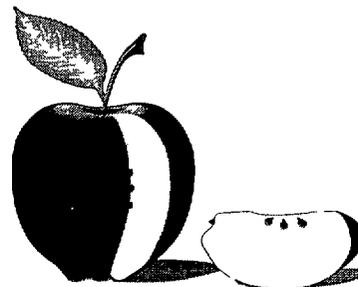
Two separate private-sector associations, one representing exporters and the other producers, each were formed to represent member interests with particular emphasis on in-country and export market trade policy monitoring and lobbying, and to provide organization and support for promotional campaigns and public relations representation. Chile has not engaged in branded promotion programs, but rather in generic advertising which benefits the entire fruit industry.

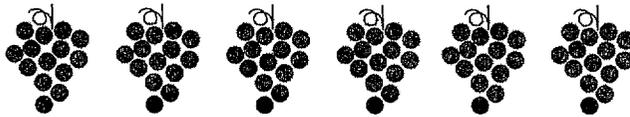
Technology Transfer. Fundacion Chile was established in 1976 through an agreement between the Government of Chile and ITT Corp (U.S.) with an original endowment of US\$50 million. Fundacion Chile is a world-renowned private non-profit technology transfer organization today, which works with individual private companies on request, and also acts as an "incubator" center for new companies, helping with start-up, growth and development. Typical of Fundacion Chile's success is the salmon industry initiative

spearheaded by the institution, then privatized, which has now placed Chile second in salmon exports worldwide

Phytosanitary Certification. The Agricultural and Livestock Services Department of the Ministry of Agriculture provides inspections to exporters on a fee basis, issuing phytosanitary certificates to insure conformity with the rules and regulations of importing countries

Pesticide Regulations. A State agency (FEDAFRUTA) and the private exporters association (ASOEX) coordinate efforts to monitor the use of pesticides and residues on fruit being exported. Fruit found to be in violation of pesticide residue standards must be brought into compliance before being shipped or take the risk of being rejected at the border of the importing country, at significant financial loss to the grower. A special division of the Ministry of Agriculture publishes pesticide standards for in-country use based on target market countries' pesticide requirements, normally the strictest standards in the target markets. (For example, each individual state in the U.S. has its own pesticide application laws, subject to additional requirements of the Environmental Protection Agency and the Food and Drug Administration. The Chilean fruit industry has therefore chosen the State of California, with the most restrictive pesticide use and residue laws, combined with EPA/FDA regulations, as the basis for its standards)



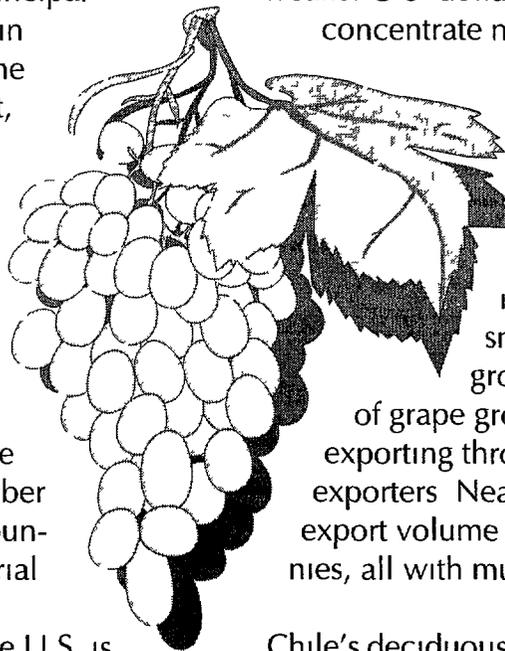


PRODUCT PROFILE

Table grapes are currently the principal export product of the Chilean fruit industry, in both cultivated land and export value. Chile exported only 5,800 tons of table grapes in 1962, but by 1990 grape exports had surpassed the 400,000 ton level. Chile's principal markets for table grapes are, in order of exported volumes, the U.S., Europe, the Middle East, Asia, and Latin America. Although the principal variety exported by Chile to each of these regions is Thompson seedless, the preference for other varieties changes from market to market. Flame seedless are second in consumption in the U.S., while Ribier is the number two variety in many other countries. Different packing material and box dimensions are also required. The standard for the U.S. is an 18-lb net weight box stackable on a 40 x 48" pallet, whereas the European standard is a 5-kg box, and the packaging material must be recyclable. The Middle East, too, has a variety of requirements depending on individual customer preferences.

Chile has significantly increased grape plantings in the last 25 years, from 115,000 acres in 1965 to 443,000 acres in 1992. Land dedicated to growing Thompson and Flame seedless represents 75 percent of the total area dedicated to grape production. Grape production in 1992 reached 680,000 tons, of which

63.4 percent was exported for an estimated US\$416 million. (It should be noted, as reflected in the attached graph, that exports have nonetheless decreased from Chile to the United States in the last three years, due to a weaker U.S. dollar and a Chilean decision to concentrate more on quality control than quantity increases.)



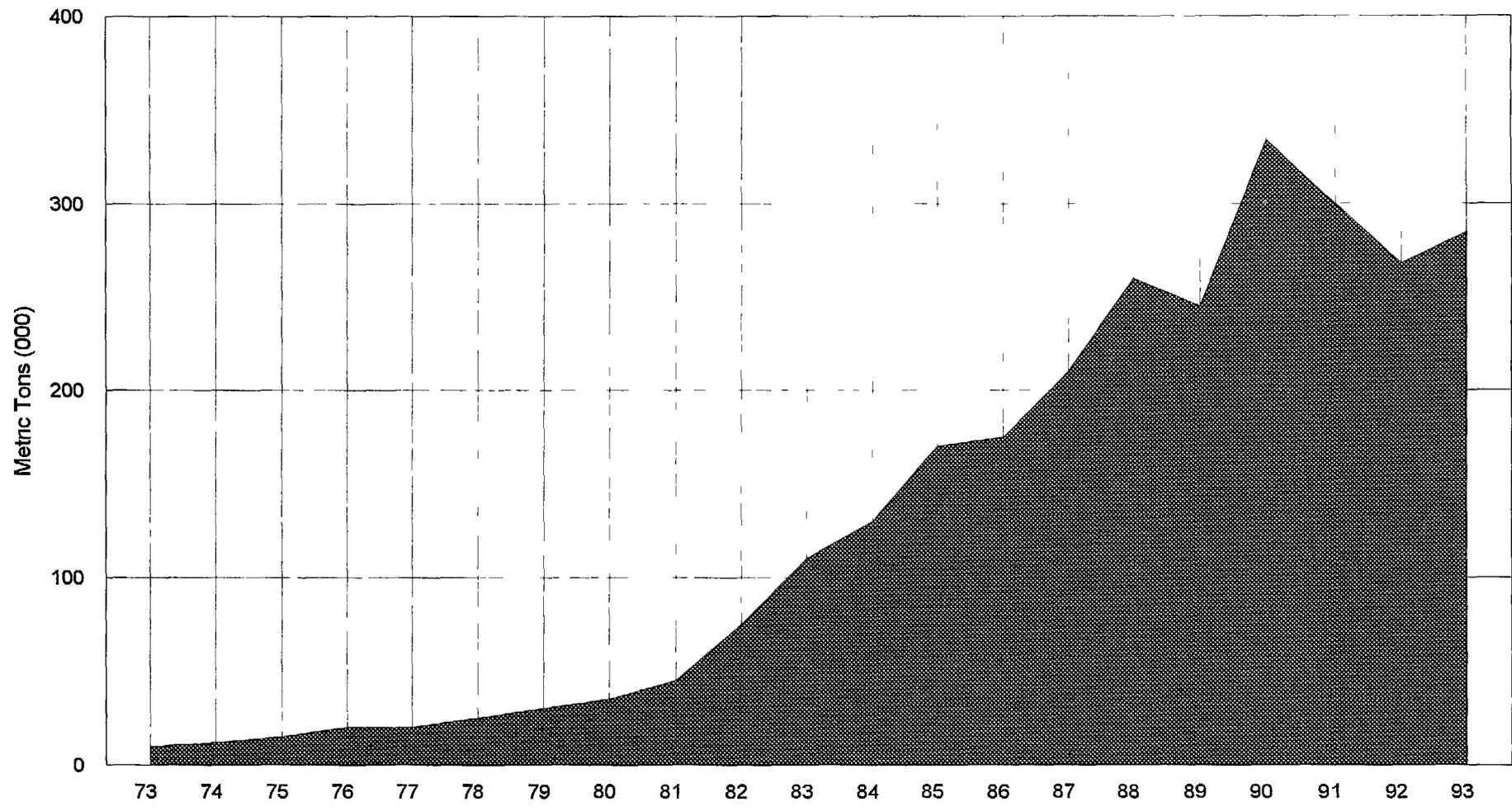
The size of the average vineyard is 30 acres, with a few ranging to over 500 acres. Today's fresh grape industry consists primarily of small and medium-size growers, with the total number of grape growers estimated at 15,000, exporting through approximately 100 exporters. Nearly 50 percent of total grape export volume is handled by six companies, all with multinational ties.

Chile's deciduous fruit is moved by trucks from packinghouses in the fruit region to nearby ports. During the peak of the fruit season, over 1/3 of the country's total fleet of 10,000 refrigerated trucks undertake this operation. Most fresh fruit leaves from one of three major sea-ports, very early season table grapes are sometimes shipped by air.

This briefing document, edited by Fintrac Inc. for the ACE Horticultural Conference, is excerpted from an ACE project publication "Study of the Chilean Horticultural Export Program," prepared under the auspices of Chemonics International in 1993 by Kraljevic, Robbins-Bens and Martin.

Chilean Table Grape Exports to the U S

1973-1993



Source USDA

5

Israel: A Successful Case Study in Export Strategy Development

BACKGROUND

Europe is Israel's largest export market, importing ECU 256.5 million of its fresh horticultural commodities in 1993.

One of the four largest non EU horticultural suppliers to Europe, Israel's largest horticultural export sector is fresh fruit, followed by flowers, and vegetables. The largest world exporter of avocados, Israel has also seen a phenomenal growth rate in other fruit exports to Europe since 1988, including mangoes (572%), grapes (189%), dates (118%) and melons (87%).

At independence in 1948, Israeli agriculture, with the exception of citrus production, was relatively unsophisticated. Farmers grew product with few inputs other than their own labor, and production techniques were generally quite primitive. Agricultural exports hardly contributed to the economy, as most production was consumed locally. Since independence, the agricultural production area has increased from 408 thousand to 1.1 million acres, with production volume expanding 1,600 percent.

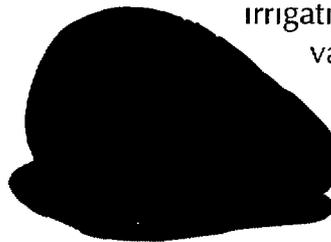
Citrus fruit comprised only 45% of the total value of Israeli fresh fruit exports to the EU in 1993, down from 74% in 1988 due to labor shortages and shifting consumer preferences. Overall fruit exports to the European community were valued at ECU 129.5 million for 1993, including avocados (ECU 27.9 million), melons (ECU 15.3 million), grapes (ECU 10.2 million), dates (ECU 6.6 million), mangoes/guavas/mangosteen (ECU 3.6 million), and strawberries (ECU 2.4 million).

1993 flower exports of ECU 93.2 million are comprised of roses (ECU 24.0 million), carnations (ECU 14.2 million), chrysanthemums (ECU 2.9 million), gladioli (ECU 245 thousand) and an "others" category not specified in trade statistics (ECU 51.9 million). Five product categories accounted for 80% of Israeli fresh vegetable exports to the EU in 1993: potatoes (ECU 13.2 million), celery (ECU 4.1 million), peppers (ECU 3.6 million), carrots/turnips (ECU 3.4 million), and tomatoes (ECU 2.9 million).

SUCCESS FACTORS

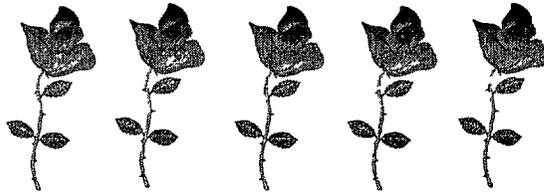
Israel has been very successful in building its export-oriented agriculture for three primary reasons: technological innovation, marketing savvy, and industry coordination with government.

Israeli agricultural research is heralded worldwide. For example, Israeli scientists have made advances in arid-zone cultivation (perfecting irrigation techniques such as drip irrigation, and breeding



varieties more suited to desert conditions), postharvest loss reduction, and methods for maximizing yields (im-

proved varietal selection and growing techniques). The Volcani Institute of Agricultural Research, part of the Ministry of Agriculture, is credited with many scientific advances, as are bi-lateral efforts headed by Israeli scientists with funding from Germany (bio-technology research) and the United States (\$8 million in 1992 to the U.S.-Israel Binational

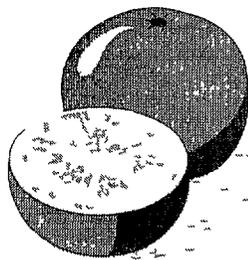


Agricultural Research and Development Fund)

Central to the successful development and application of scientific growing techniques has been the two-way flow of information between growers and researchers, facilitated by a network of extension services. Farmers provide information on their needs to researchers, who can in turn quickly offer solutions or new ideas.

Marketing efforts are largely credited to Agrexco, the state-owned corporation responsible for almost all fresh horticultural exports. Now half-owned by producers and in the process of full privatization, Agrexco markets products under the exclusive brand labels "Carmel" and "Carmel Bio-Top" (organic).

Israel's climatic conditions have also been instrumental in its success, reflecting a diversity capable of supporting production of temperate, semi-tropical, and tropical products. Agricultural production is centered in three regions: the northern coastal plains, the hills of the interior, and the upper Jordan Valley. The area of land under irrigation has increased from 74 thousand to 630 thousand acres since 1948.



GOVERNMENT INITIATIVES

The Government of Israel is very active in the export agriculture sector, participating on all levels of production and marketing. Although

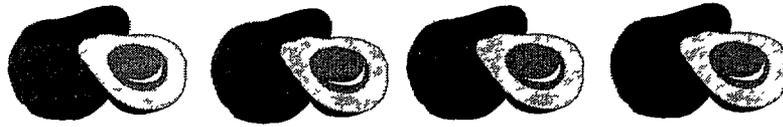
the role of the Government is currently declining, it continues to be a major player.

Production Quotas. Most agricultural production is limited by government-created production and water quotas. Currently, production and water quotas are being decreased for cotton growers, and raised for export-oriented horticulture, particularly for off-season crops.

Subsidization. Almost all agricultural production subsidies have been eliminated. Water is still made available to farmers at below cost, but this practice is being phased out. Producers of cotton and other crops requiring large quantities of water are being encouraged to switch production to higher value, off-season, greenhouse horticultural crops with 40% to 60% grants on investment. Government support is also being provided to citrus growers to facilitate the regrafting of trees to varieties more desired by the export market.

Port Fees. Currently the fee system at ports is being restructured to reflect the true cost of services. Before this restructuring, exporters to Israel were charged a government-determined rate, which was waived for Israeli exporters. Charges levied on exporters to Israel were subsidizing the port costs of Israeli exports.

International Agreements. The Government of Israel has negotiated and signed several free-trade agreements that have proved very beneficial to Israeli exporters. It is perhaps the only nation to have signed free-trade agreements with the European Union (1975), the United States (1985), and



the European Free Trade Area (1993) The Agreement with the EU excludes some agricultural products Israel is also a member of the General Agreement on Tariffs and Trade (GATT)

Export Standards. Horticultural export standards are set jointly by the Ministry of Agriculture and Agrexco Standards are set to conform to or exceed the quality standards of target markets

Phytosanitary Certification The Ministry of Agriculture (Plant Protection Services) inspects goods for enterability into foreign markets

Labor. Political conditions, such as border restrictions placed upon Palestinians, have created severe shortages of agricultural labor Attempts to bring in Thai, Romanian, and Turkish workers have not proved sufficient and harvesting remains a problem

Single Marketing Channels. Historically, most agricultural production fell under the control of marketing boards with monopolistic power over the industry they regulated These include the Citrus Marketing Board of Israel (CMBI), which controlled almost all citrus exports, and Agrexco, which was responsible for non-citrus horticulture The CMBI lost its monopolistic control of the industry, disappeared, and reappeared again -but not with the power it once had Agrexco has also changed, although its fortunes have been much better Exports of horticultural products break records every year, and Agrexco's insistence on high quality product has gained it both international acclaim and, more importantly, market share

PRIVATE SECTOR

Half of farmer income is generated from export sales Flowers, avocados, out-of-season vegetables and some exotic fruits are grown almost exclusively for export

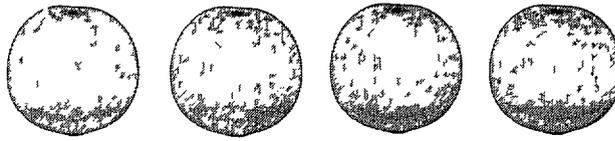
Cooperatives It is estimated that 76% of agricultural production takes place on either Kibbutzim or Moshavim The Kibbutzim are farming cooperatives which average 2,500 acres in size, and all means of production, consumption, and distribution are communally owned Moshavim are farming communities that cooperate in purchasing and marketing Moshavim also provide credit to members, whose average individual farm size is 15 acres

Privatization CMB's loss of monopolistic status has opened up the once profitable citrus marketing industry to private firms Export licenses are now available to those able to prove financial strength, business integrity, and experience Four firms to date have been granted licenses to export citrus -- 'Tnuport', 'Yaknin', 'Mahadrin' -- and Agrexco

Private producers now own half of Agrexco, which is in the process of full privatization

AGREXCO

In almost forty years of operation, Agrexco has forged strong ties in the European market, based on its ability to provide high quality product on a reliable basis Daily contact by Agrexco representatives situated in all major



European markets guarantees consistent communication and customer satisfaction

Following are five self-stated goals of the main Israeli marketing corporation

- √ Orient production of special crops to meet the requirements and standards of overseas markets,
- √ Maintain the highest standard of quality control,
- √ Create aesthetic, space-saving packaging methods,
- √ Ensure that modern communication and transportation facilities support a coordinated freshness chain, and
- √ Implement up-to-the minute information, advertising and public relations services to all levels of the trade

Export Standards. Export product is graded by the government and Agrexco to ensure acceptance in export markets, product which does not meet export requirements is sent back to the producer

Packaging. Product is packed in materials specially designed to preserve freshness, minimize transport costs, and appeal visually to consumers

Brand Labelling. The Carmel brand name is well-known and has grown to be associated with top quality because export standards are rigorously set and enforced, for example, recent studies show one in three British consumers recognize the brand

Market Information. Before 1956, the year of Agrexco's creation, agricultural exports (excluding citrus) were mainly the result of excess supply in the domestic market After this period, Agrexco guided farmers into production of crops for export Extensive market research was conducted to find consumer preferences and to identify likely successful export products

Agrexco still utilizes market information to direct product to the most profitable markets, and also to set prices

Commercial Alliances. Private firms broker Agrexco's sales These firms are normally located in the wholesale markets where they sell the products at Agrexco-set prices for a fixed commission (Agrexco staff or agents ensure that the product is properly transported to the broker after arrival in the export market)

Joint Marketing Ventures. To supply more product that it can obtain by sourcing only from within Israel, Agrexco now markets third-country product that does not directly compete with Israeli product For example, Argentinean citrus and Mexican mangos are now being marketed through Agrexco Some experimental shipments of Indian fruit, mainly grapes, are currently being undertaken Product sourced from third countries does not receive the Carmel brand name Such marketing arrangements are projected to increase in the future



PRODUCT PROFILE

Israeli exports of mangoes to the European Union expanded significantly from 1988 to 1993, growing from 443 MTs (ECU 0.7 million) to 2,875 MTs (ECU 3.6 million)¹. Nearly all Israeli exports are destined for Europe, whose total mango imports have increased from 27.3 thousand MTs in 1988 to 43.9 thousand MTs in 1993.

In 1993, Israel supplied 7% of all mangos imported from non-EU countries by the European Union, up from less than 2% in 1988. European imports of Israeli mangoes are highest during the period August-November (99% of overall volume in 1993).

France is Israel's largest market for mangoes, importing 63% of total Israeli exports to Europe (1,860 MTs, ECU 2.3 million) in 1993. The United Kingdom was the next largest market with 265 MTs (ECU 0.3 million), followed by the Netherlands with 231 MTs (ECU 0.2 million) and Germany with 227 MTs (ECU 0.2 million).

Israel was the second largest supplier to the French market in 1993 (19 percent of annual volume), slightly behind the Ivory Coast. During the period when Israel targets the French market (August-November), the only other significant suppliers were Mexico, whose season ends in August, and Brazil, whose season begins in October and accelerates in November.

1994 ITC importer prices show Israeli Tommy Atkins mango prices remaining unchanged at FF12/kg to FF13/kg for the four week period beginning in mid-August. Israeli supply of unspecified varieties were reported selling at FF9-FF12/kg for three weeks following the period of Tommy Atkins supply. During the end of Israel's season (early November), Israeli mangoes (unspecified variety, shipped by air) were selling for FF17-FF19/kg.

Estimated mango exports from Israel are projected to increase 3 to 5 times over the next five years. Israeli mangoes are typically smaller than those from other world suppliers, such as the large mangoes available from South America, but Agrexco is marketing their smaller size as a selling point (lower per unit cost).

Israeli production of mangoes has increased from 2 thousand MTs in 1979 to 13 thousand MTs in 1992. Israeli mangoes have an international reputation for high quality, due in part to excellent cultural practices and postharvest treatments, but also because they are untroubled by tropical plant diseases that afflict many other mango producers.

Varieties produced include Keitt (which accounted for 50% of 1990 production), Tommy Atkins, Kent, Haden, Maya (attractive coloration), Irwin, Lily, and Palmer mangoes. Nimrod mangoes are no longer in production due to the large area needed per tree. The main varieties exported include the Atkins, Kent, Haden, Lily and Keitt.

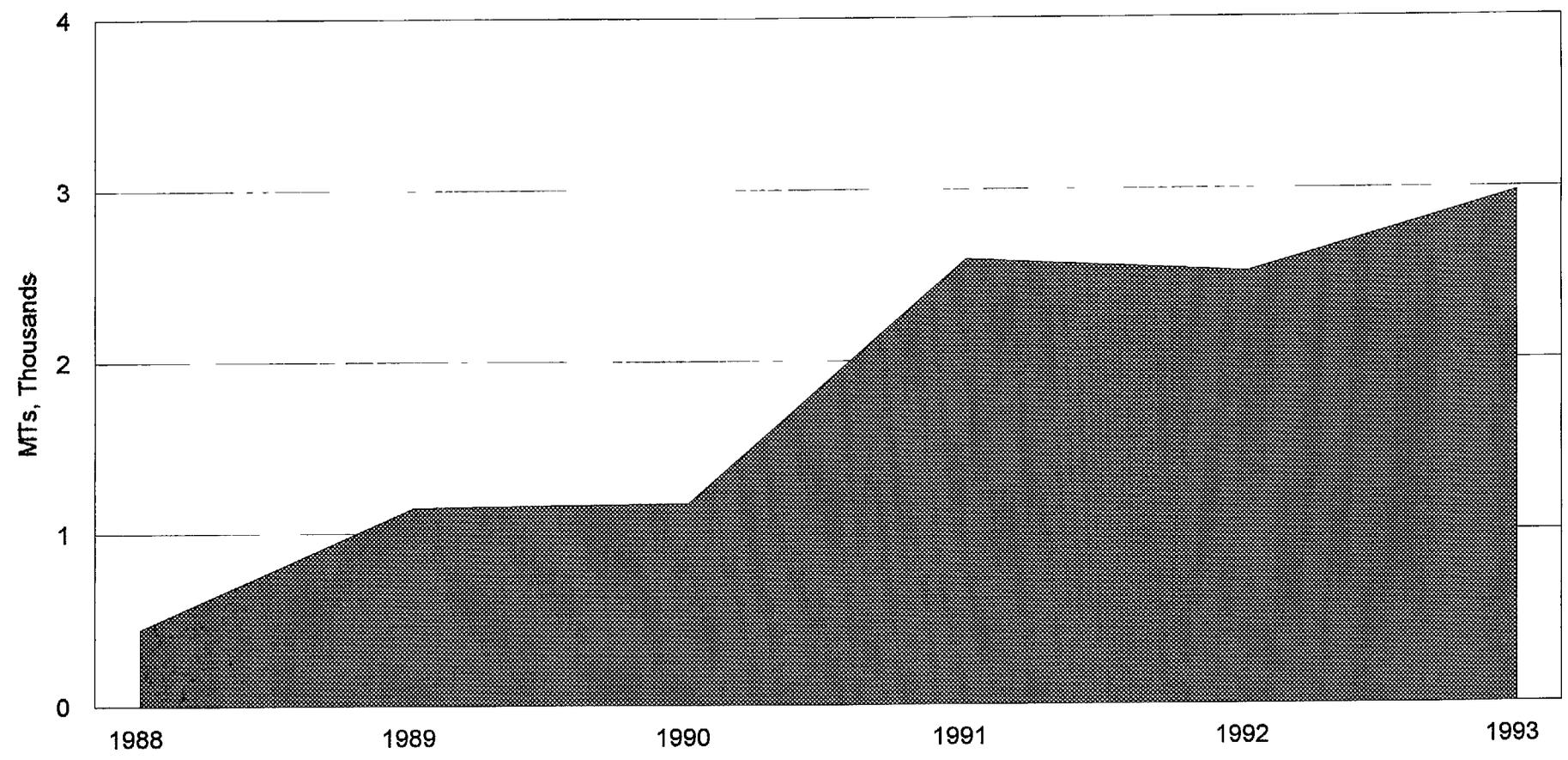
Mangoes are generally packed in 4-5/kg cartons, which often contain 10 to 12 fruit. Comparatively, South American cartons of the same size may contain 4 - 6 fruit.

¹ European Union import statistics include mangoes with guavas and mangosteens.

Sources used in preparation include 1994 issues of the *Fresh Produce Journal*, the *Israeli Government*, *Agrexco*, the *Office of the U.S. Special Trade Representative*, the *Foreign Agricultural Service of the U.S. Department of Agriculture*, the "Israel Area Handbook" of the *U.S. Department of the Army*, the *Economist Intelligence Unit*, and *Eurostat*.

EU Imports of Mangoes from Israel

1988 - 1993



Source Eurostat
Note Includes Mangosteens and Guavas

Thailand: A Successful Case Study in Export Strategy Development

BACKGROUND

Booming fresh and processed horticultural exports¹ nearly doubled over the period 1985 to 1992 (from US\$1.0 billion to US\$1.9 billion), making the Thai horticultural export industry one of the region's most successful. Thailand exports a majority of horticultural products to nearby Singapore, Malaysia, and Hong Kong although, since the mid-eighties an increasing percentage is being exported to more distant markets in Asia, North America, Europe, and the Middle East.

Thailand's international reputation in the horticultural industry is built upon its rapid export growth of fresh and processed tropical and exotic fruits, vegetables, and flowers. Although manioc and other tubers remained Thailand's single largest agricultural export category in 1992 (49% of value), the highest export value growth over the period 1989-1992 has occurred in other sectors: plants, foliage, and flowers (43%), fresh vegetables (136%), frozen vegetables (302%), provisionally preserved vegetables (41%), dried vegetables (39%), nuts (41%), fresh/dried fruits (88%), and other processed fruits and vegetables (79%).

Grouped together, processed fruit and vegetables exports have been gaining importance, growing 66% in export value over the period 1989-1992 and accounting for 41% of total horticultural export value in 1992. Processed pineapples are Thailand's top processed export. Thailand also exports significant quantities of processed bamboo shoots, baby corn, asparagus, tomato, mushrooms, mango, rambutan, lychee, longan, and pa-

paya. Fresh fruits, vegetables, and nuts accounted for only 5% of export value in 1992. Longan and durian exports combined constitute nearly half of fresh fruit exports. Other fruit exports include citrus, mangoes, mangosteen, bananas and rambutan. Asparagus is Thailand's top vegetable export, followed by salad beet root and other similar edible roots, onions, okra, capsicum, baby corn, and beans. Coconuts and cashews are the largest nut exports. See page 16 for a profile on orchids, Thailand's most successful floricultural export.

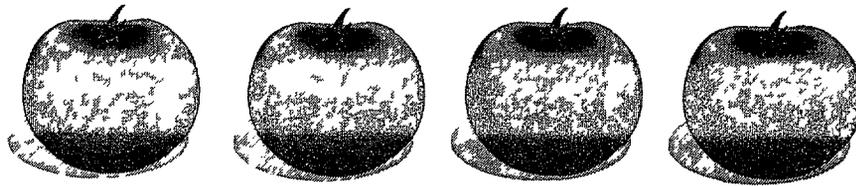
SUCCESS FACTORS

Thailand's export success can be attributed mainly to favorable climatic conditions, low labor costs, strong private sector initiatives, and the support of the Royal Thai Government (RTG). The climatic conditions enable Thailand to supply importers with a consistent year-round supply of a range of products. Low labor costs have allowed the country to be competitive in distant markets, despite high shipping costs. Government and private sector initiatives are detailed below.

GOVERNMENT INITIATIVES

The RTG provides a range of support services to the horticultural industry, detailed in the National Economic and Social Development Board's five year plans. The 7th Plan (1992-1996) recognizes that growth and success in

¹ 'Fresh and processed horticulture' includes those products listed under harmonized tariff schedule chapters 6, 7, 8, 9, and 20. These chapters roughly cover fresh and processed plants, flowers, foliage, fruit, vegetables, nuts, coffee, tea, and spices.



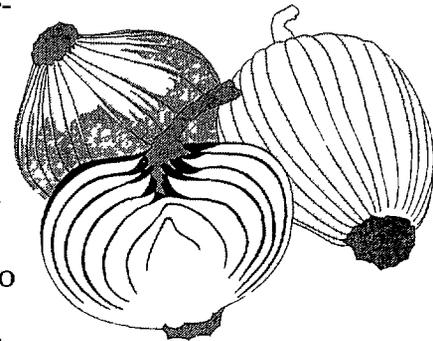
agriculture has and will come from the diversification of production from traditional bulk crops to high-value, including processed, exports. The Plan provides for RTG support and coordination with producers on research, information and technology transfer in production, irrigation, varietal selection, and the efficient use of agricultural inputs. It also strives to promote responsible use of chemicals and increased usage of integrated pest management techniques. Also mentioned as targeted activities in the Plan are increasing the availability of agricultural credit and promoting contract farming.

Previous National Economic and Social Development Plans also supported agriculture. The First Plan (1961-1966) worked to improve credit availability and to upgrade roads, the Fifth Plan (1982-1986) endeavored to increase public-private sector coordination and to improve product quality. As one of the most export oriented plans, the Sixth Plan (1987-1991) aimed to encourage product acceptance in foreign markets by improving marketing and the cold chain, and conducting scientific research on new varieties and technologies to improve product quality.

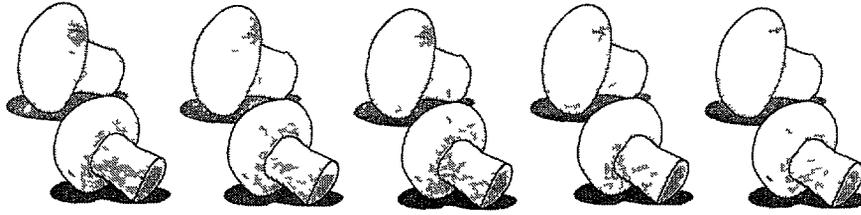
Four RTG Ministries are tasked with providing assistance to the agricultural export industry. The Ministry of Agriculture and Cooperatives (MOAC) provides agricultural extension services, while the Ministry of Science, Technology, and Energy (MOSTE) conducts research. The Ministry of Commerce (MOC) is tasked with export promotion of agricultural products, and the Ministry of Communication and Transportation (MOCAT) works to improve transportation systems.

Research and Technology The Thailand Institute of Scientific and Technological Research (TISTR) of MOSTE conducts research based on needs expressed by the private sector. TISTR's Thai Packaging Center evaluates existing packaging methods and technologies, investigates potential new technologies, provides technical assistance and training, and facilitates interaction between consumers and packaging manufacturers. Other divisions of TISTR work to improve food product quality and acceptance, although MOAC's Horticultural Research Institute does the most work in this field, conducting research on improvements in cultural practices and varietal selection.

Extension Thai production of horticultural products remains dominated by small farmers. Although small farmer associations and contract farming arrangements with large exporting firms are becoming more common, there still is a need to communicate scientific and market information to a large and often isolated number of farmers. MOAC's Department of Agricultural Extension fills this need by providing such information, and additionally by relaying farmers' needs and concerns back to the research and export communities.



Credit The Bank for Agriculture and Agricultural Cooperatives (BAAC) provides credit to producers and exporters. BAAC, under the direction of the 7th National Social and



Economic Development Plan, also provides credit guarantees to commercial banks lending for agricultural purposes

Air Transport. Often accounting for as much as 60% of the retail price for fresh produce transported to European markets, airfreight cost is one of the biggest constraints on Thai export competitiveness. MOCAT sets perishable cargo rates for state-owned Thai Airways International, which allots 50% of its cargo capacity to perishables. Thai Airways usually loads produce on its early morning flights, avoiding exposure to high daytime temperatures. It also provides low-cost cold storage space to exporters and is expanding its refrigeration facilities.

Sea Transport Despite Thai Airways' demonstrated willingness to work with exporters, limited cargo space and high costs have induced exporters and the RTG to examine sea transportation of perishables. RTG agencies are researching ways to preserve product quality during longer sea voyages, and through the provision of credit, consultation and agricultural inputs, support trial sea shipments.

Export Promotion The RTG's MOC provides various export promotion services to private producers and exporters, including an advisory service, market information, and meeting facilities to be used for interactions with foreign buyers. Thai Business Centers, which are not limited to agriculture, are operated by the government both domestically and internationally to promote Thai products, foster joint ventures, and collect market intelligence. The government also sponsors trade missions and shows.

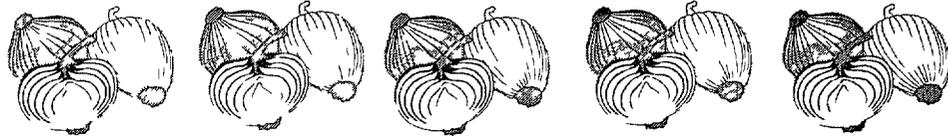
Phytosanitary Certification. All horticultural exports are evaluated by MOAC's Department of Agriculture (Plant Quarantine Division) to determine whether they meet enterability requirements in their destination markets. Inspection facilities were recently moved from Kasetsart University, which was inconveniently located for many exporters, to all international airports and the Klong Toey seaport.

Export Standards In 1989, the Horticulture Research Institute issued official export standards which reflected prevailing import market standards. However, acceptance of these standards has been limited, with many producers and exporters relying instead on importer feedback.

International Agreements. Thailand is a member of the Association of Southeast Asian Nations (ASEAN), and as such is included in the ASEAN Free-Trade Area which provides for the gradual phase-in of preferential tariff rates (0-5%) for member nations over a 15-year period. Thailand is also a signatory of the General Agreement on Tariffs and Trade (GATT).

PRIVATE SECTOR INITIATIVES

Production and marketing decisions are made by the private farmer and exporter, not the government. Instances of vertical integration in horticultural production and marketing are becoming more common as large-scale investments by foreign (mainly Japanese and European) and local firms increase. Thai firms, with excess capital and spurred by increasing labor costs, are also actively pursuing investment options in other producing nations.



Commercial Alliances and Joint Ventures. Domestic Thai industry actively allies itself with foreign agribusinesses such as Dole, Geest, and Saphir. The integrated production/marketing effort of Saphir, a British fresh produce importer, with P Fresh, a Thai firm, in specialty asparagus is but one example. Taking advantage of year-round production capability and relatively low labor costs, P Fresh (with Saphir investments) contracts production with farms instructed in the high yielding, yet labor intensive, "mother of fern" growing method. High value baby spears produced with this method have two distinct export advantages: high value and low weight, the latter of which cuts transportation costs. Asparagus tips, with similar marketing advantages, are also produced. Product is pre-cooled in facilities owned by P Fresh and located in production areas. Product is then graded according to Saphir specifications, packed in Saphir-specified materials, and transported under refrigeration to the airport. Saphir distributes the spears and tips on a weekly basis to customers in the United Kingdom and other European markets.

Currently, there are several Thai investments in orchid production in India. The start up of an orchid project near Madras is currently being assisted by a Thai firm.

Industry Associations. The Association of Fresh Fruit and Vegetable Exporters represents and promotes the Thai export industry. Many farmers belong to either formal or informal producer associations, which liaise with exporters and communicate market and technical information to members.

Joint Public - Private Sector Initiatives. Although Thai mango exports to Japan are currently low, this potentially large yet restrictive market was penetrated by Thai producers as the result of RTG actions. The RTG convinced Japanese importers of the import potential of Thai mangoes through interaction culminating in an organized tour of Thai production areas. However, Japanese phytosanitary regulations require vapor heat treatment (VHT) for mangoes imported from fruit fly-infested areas. The RTG negotiated the multi-million dollar purchase and installation of two VHT facilities from a Japanese firm. The completed facilities were in turn leased to private Thai firms, and the RTG expects to recoup all of its costs within six years.



PRODUCT PROFILE

Thailand is the world's largest exporter of tropical orchids and dominates all major import markets. Over the period 1989-1992, Thai export value of cut orchids increased 38% to US\$27.5 million (f.o.b.), while exports of orchid plants increased 70% to US\$3.3 million (f.o.b.). Thailand exports fresh cut orchids to more than 60 countries, although Japan is by far the largest market (accounting for 52% of Thai export value in 1992). The European Union and the United States accounted for 28% and 9% of total 1992 value, respectively.

Japan receives more than 80% of its cut orchid imports from Thailand. The United States relies on Thailand for 98% of its dendrobium and 59% of its non-dendrobium orchid imports, which totaled 14 million stems and 6 million stems, respectively, in 1993. While the Netherlands is a major internal supplier of orchids in the European Union (EU), it produces mostly cymbidium varieties. Thailand is the largest non-member supplier to the EU, accounting for 94% of total cut orchid imports from foreign suppliers. Because of phytosanitary restrictions, Thailand did not even export to Japan or the United States prior to 1975.



Although exports are still only a fraction of that for cut orchids, Thai orchid plants have witnessed growing demand. Japan accounted for 49% of Thai export value in 1992, followed by the Philippines (9%), the United States (9%), Korea (9%), and the European Union (4%). Taiwan, Malaysia, Costa Rica, Hong Kong and India round out the top ten markets for Thai orchid plants in 1992.

Industry sources cite several factors which have accounted for the success of the Thai export

orchid industry: product quality and selection, price, and climate. Research conducted by private Thai firms and the Thai government, along with acquired Dutch technology, have been applied to improve local production and postharvest handling practices. Tissue culture laboratories produce high quality propagative material. Large scale farms benefit from advanced growing techniques, inexpensive labor, and a climate which supports year-round production. Postharvest handling of Thai orchids is impressive, with rapid transport from farms (many of which are located within a short distance from Bangkok's international airport) to large export

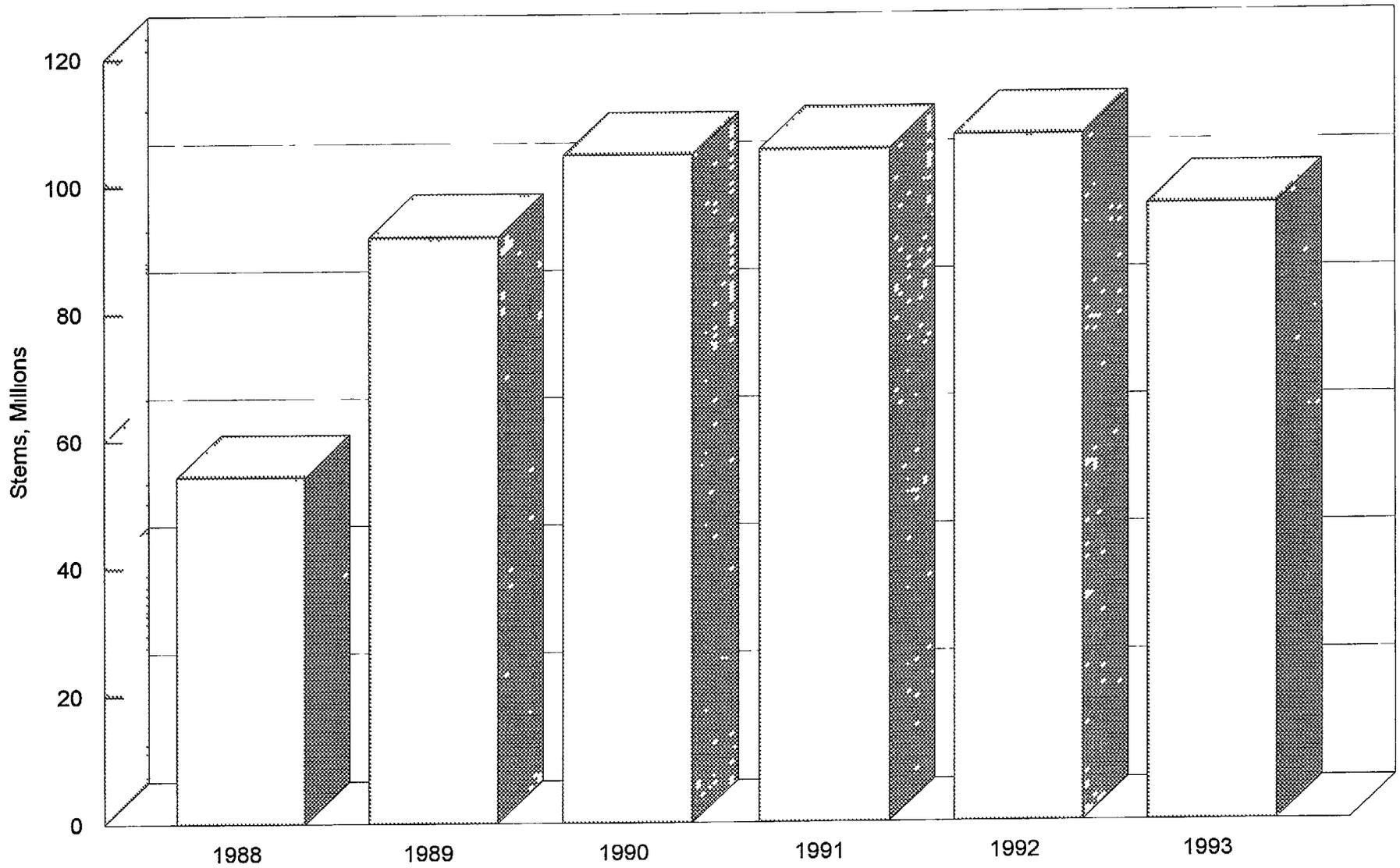
houses equipped with conveyor systems and cool rooms. Product is treated with ethylene block chemicals, graded, and packed while in the cold chain. Government-owned Thai Airways International offers preferential treatment for cut flowers over other perishables, with cargo rates set by the government.

Thailand's export industry was founded on the 'Pompadour' orchid in the mid-1970s, which experienced high demand in major import markets. However, in the early 1980's, overproduction and changing consumer preferences caused prices to fall. Thailand developed new export varieties to meet this changing demand and, along with increased overall orchid demand by consumers (some of which was accounted for by increased affordability), it reaffirmed its position in the world market in the late 1980s.

Sources used in preparation include 1994 issues of the Fresh Produce Journal, various issues of the Bangkok Bank Monthly Review, the Royal Thai Government, the Office of the U.S. Special Trade Representative, Eurostat, NTDB, and "A Case Study of Successful Innovations in the FFU Industry in Thailand" (Tim Welsh, AMIS Project, 1991).

EU Imports of Orchids From Thailand

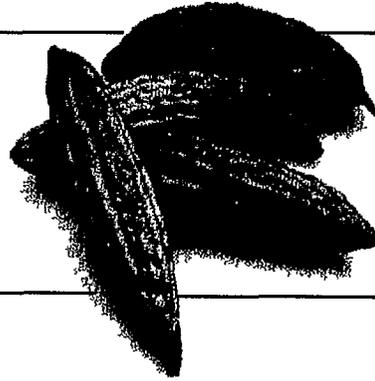
1988 - 1993



Source Eurostat

COUNTRY BRIEFS:
KENYA
PHILIPPINES
SOUTH AFRICA

A BRIEF ON KENYAN VEGETABLE EXPORTS



Overview

Fresh vegetables comprised 42% (26 4 thousand MTs) of Kenya's fresh horticultural export volume in 1993, larger than either fresh fruit or cut flower exports. French bean exports account for 54% of all fresh vegetable exports, followed by chillies (8%), okra (8%), aubergine (6%), bitter melon/karela (6%), and bobby beans (4%). The United Kingdom is Kenya's major market for vegetables, receiving over half (15 0 thousand MTs) of Kenyan export volume in 1993, followed by France (6 5 thousand MTs), Holland (1 4 thousand MTs), Belgium (1 4 thousand MTs), and Germany (591 MTs). The table on pg 19 provides a complete breakdown by product and market for 1993 vegetable exports.

Kenya has carved a substantial niche in the European market, particularly in the United Kingdom, for Asian vegetables, with exports of 3 2 thousand MTs or 12% of all fresh vegetable exports in 1993. Exports are actually higher, as this amount does not include Asian chillies or Chinese okra, which are included in basket categories. Kenya, which remains one of the largest suppliers of Asian vegetables in Europe, is facing increasing competition from other producers, including the Dominican Republic and Suriname. In addition, recent discussions with importers in the United Kingdom and the Netherlands reveal that the demand growth from the immigrant population is slowing as subsequent generations become more assimilated with the general population with regard to food preferences. Japanese eggplant and Asian chillies are the only Asian vegetables which have shown any strong crossover appeal with the general population. Because

of these market characteristics, new entrants will likely have more success trying to wrestle market share away from existing suppliers than in expanding total demand.

Kenya, a former colony of the United Kingdom, maintains strong trade ties with the U K as evidenced by its premier position as an importer of Kenyan fresh vegetables. The United Kingdom's nearly 90 percent share of Kenya's Asian vegetable exports are accounted for by the U K's large ethnic Indian and other Asian populations. Fine beans are the only fresh vegetable product which Kenya has had success in expanding to other markets. More than three-quarters of fresh vegetable exports to markets other than the U K are fine beans, with more than two-thirds of this amount shipped to France. The Kenyan horticultural industry is beginning to address this overdependence on only a few markets and products, and is actively marketing product to other countries in Europe and the Middle East.

Varietal Selection, Export Standards, Transportation, and Related Initiatives

Increasing competition from new suppliers in Africa and Latin America, along with postharvest problems, have threatened Kenya's market share on several counts. A combination of initiatives by farmers, exporters' associations, and the Government of Kenya (GOK) have been undertaken to address these challenges, however. Recent legislation enables producers to access agricultural inputs duty-free, allowing small farmers access to cheaper and higher quality imported packaging material.

The Fresh Produce Exporters' Association of Kenya (FPEAK), with the majority of its members being small vegetable producers and exporters, is actively promoting the importance of quality through postharvest training for its members and the establishment of export standards. In addition, cold storage facilities at Nairobi's international airport are being improved by commercial enterprises, with GOK investment and upgrades slated for 1995.

The Kenyan private sector has historically proven itself adept at identifying market niches,

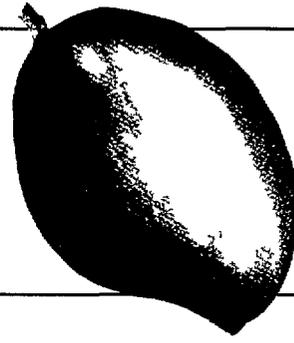
as its successes in non-traditional fresh vegetable exports to Europe illustrate. The latest emphasis is on value-added processing in the form of "pre-pack" distribution, an increasingly popular trend in Europe which Kenya should be able to quickly capitalize on because of its strong name recognition in the market.

Sources: Kenya Horticultural Crops Development Authority, Eurostat, Agricultural Sub-Sector Survey (Harris 1992), "Fresh Produce Exporter" and the USAID-funded KEDS project.

1993 Kenyan Exports of Fresh Vegetables												
	Metric Tons											
	UK	Germany	France	Switzerland	Belgium	Holland	Italy	Djibouti	Sweden	S Arabia	Others	Totals
French Beans	5 551	267	5 810	268	1 196	947	31	16	0	6	116	14 209
Bobby Beans	444	75	225	34	78	184	12	1	0	0	11	1 034
Snow Peas	117	19	56	0	15	74	0	0	1	1	2	284
Capsicums	0	0	0	0	0	0	0	0	0	0	29	29
Okra	1 625	91	118	7	21	85	0	3	18	1	107	2 076
Aubergine	1 453	18	58	2	2	15	0	2	1	3	58	1 619
Karela	1 333	22	49	1	4	12	0	1	4	1	72	1 499
Dudhi	380	8	14	1	2	7	0	0	3	0	26	427
Chillies	2 037	32	31	3	5	16	0	3	4	0	50	2 182
Valore	300	1	7	0	0	28	0	1	0	0	8	345
Guvvar	48	0	2	0	1	0	0	0	1	0	10	63
Other Asian Veg	748	0	38	3	3	4	0	4	2	0	35	843
Courgettes	1	0	0	0	0	0	0	14	0	0	17	33
Tomatoes	1	1	17	0	0	0	0	87	0	0	88	172
Leeks	0	0	0	0	0	0	0	1	0	0	7	7
Carrots	0	0	0	0	0	0	0	2	0	0	38	38
Misc Veg	938	51	43	16	39	103	0	51	4	2	314	1 561
Total Vegetables	14,975	581	6,469	235	1,362	1,448	44	189	39	15	566	26,421

Source: HCDA

A BRIEF ON PHILIPPINE MANGO EXPORTS



Overview

The Philippines is the largest supplier of fresh mangoes to both Japan and Hong Kong. Philippine mangoes accounted for 88% of import volume into Japan, and 79% into Hong Kong.

Mango exports from the Philippines, fueled by success to these markets, increased dramatically between 1985 and 1992, going from 8.4 thousand MTs (US\$ 7.5 million) to 27.1 thousand MTs (US\$28.7 million). Available volume statistics indicate further growth in 1993 to 30.3 thousand MTs.

Exports to Singapore (the Philippines third largest market) have decreased 52% between 1991 and 1993, even though Singapore's total imports have grown by 41% over the same period (10.3 thousand MTs, US\$8.0 million). India, Australia, and Pakistan have all benefitted from the Philippines' decline, which importers attribute to the high cost associated with air transportation. It is reported that efforts are underway by Filipino exporters to shift to sea transport for the Singapore market, in order to regain market share.

Varietal Selection, Export Standards, Transportation, and Related Initiatives

The ability to supply markets year-round provides the Philippines with a seasonal advantage over potential competitors, but most important is the distinctive mango variety produced in the Philippines. Known as the Carabao or Super Manila, it is the market standard in both Japan and Hong Kong.

Another success factor with regards to the Japanese market is adherence to that country's stringent phytosanitary restrictions. Vapor Heat Treatment (VHT), a process about 10 times more expensive than more traditional treatments, is required as a condition of entry for mangoes from fruit fly regions, and the Philippines has invested in several VHT facilities. Built to meet Japanese specifications, located in Manila, and overseen by Japanese officials, these provide the Philippines with an edge over competitors, whose mangoes without VHT treatment are barred from entering Japan.

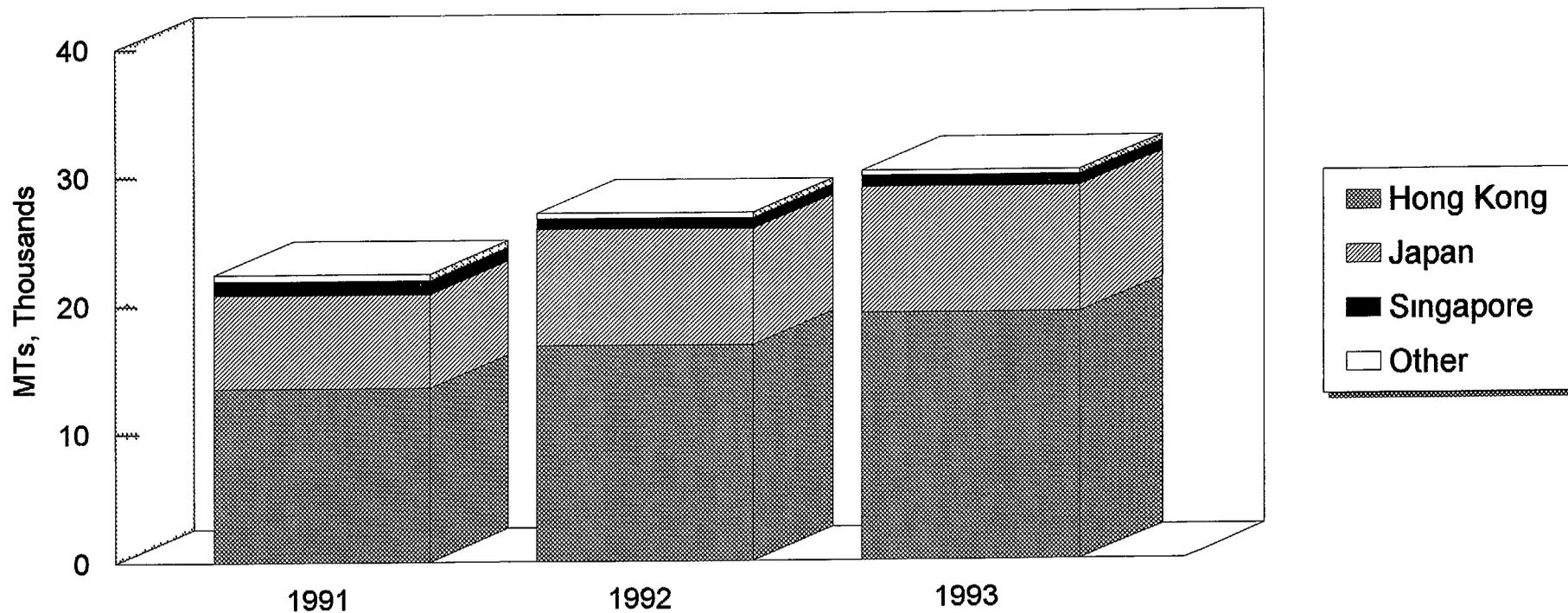
Mangoes are shipped by both air and sea from the Philippines, normally depending on seasonal import market demand, although obstacles to refrigerated sea transport persist as illustrated by declining Filipino market share in Singapore. Modified-atmosphere trial shipments to Canada are part of a current plan underway to address these types of inconsistencies, however.

Other initiatives include increasing production during July through January (historically a lower volume period), decentralizing VHT to allow for more efficient transport to Japan, and exporting product to new markets such as Korea, Taiwan, and the eastern Newly Independent States (NIS).

Sources: Philippines External Statistics, Singapore External Statistics, Japan Tariff Association, Census and Statistics Department of Hong Kong, The Hong Kong Market Market for Fruits and Vegetables (Harmon, Suriadinata, 1994), and the USAID-funded ASAP Project.

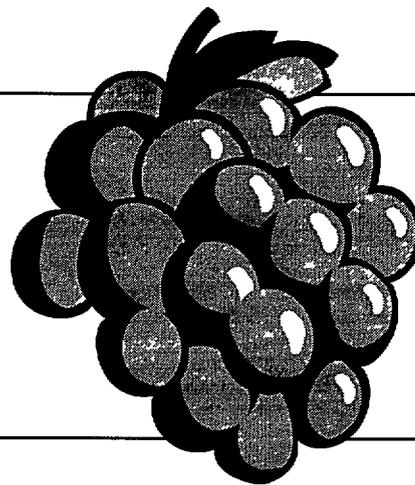
Philippine Exports of Fresh Mangoes

1991 - 1993, MTs



Source Philippine External Trade Statistics

A BRIEF ON SOUTH AFRICAN GRAPE EXPORTS



Overview

Grapes are South Africa's third largest export crop, behind apples and pears. South African production of grapes is projected to reach a record-setting 133 thousand tons in 1994, with 60 percent (80 thousand tons) targeted for export. These projections indicate 20 percent growth in production and 22 percent growth in export volume since 1991. Chile is the only other Southern Hemisphere grape producer with greater production and exports (estimated to be 860 thousand tons of production with 425 thousand tons exported in 1994), but their growth rates are less impressive (8 percent growth in production and 0.5 percent growth in exports from 1991 to 1994).

South Africa expected to export 20 million 5-kg trays of grapes in 1994 (4 million seedless, 7 million white, 9 million black). Europe is the primary market (15 million 5-kg trays), with remaining exports split between markets in the Middle East, the Indian Ocean region, Asia and the United States.

Private Sector Initiatives

South African grapes are known internationally to be of exceedingly high quality. This reputation has been earned through the utilization of a single marketing channel, Unifruco, which participates in every step of the farm-to-retail process. The company, established over forty years ago, is owned by South Africa's 1,500 deciduous fruit growers.

Varietal Selection, Export Standards and Transportation

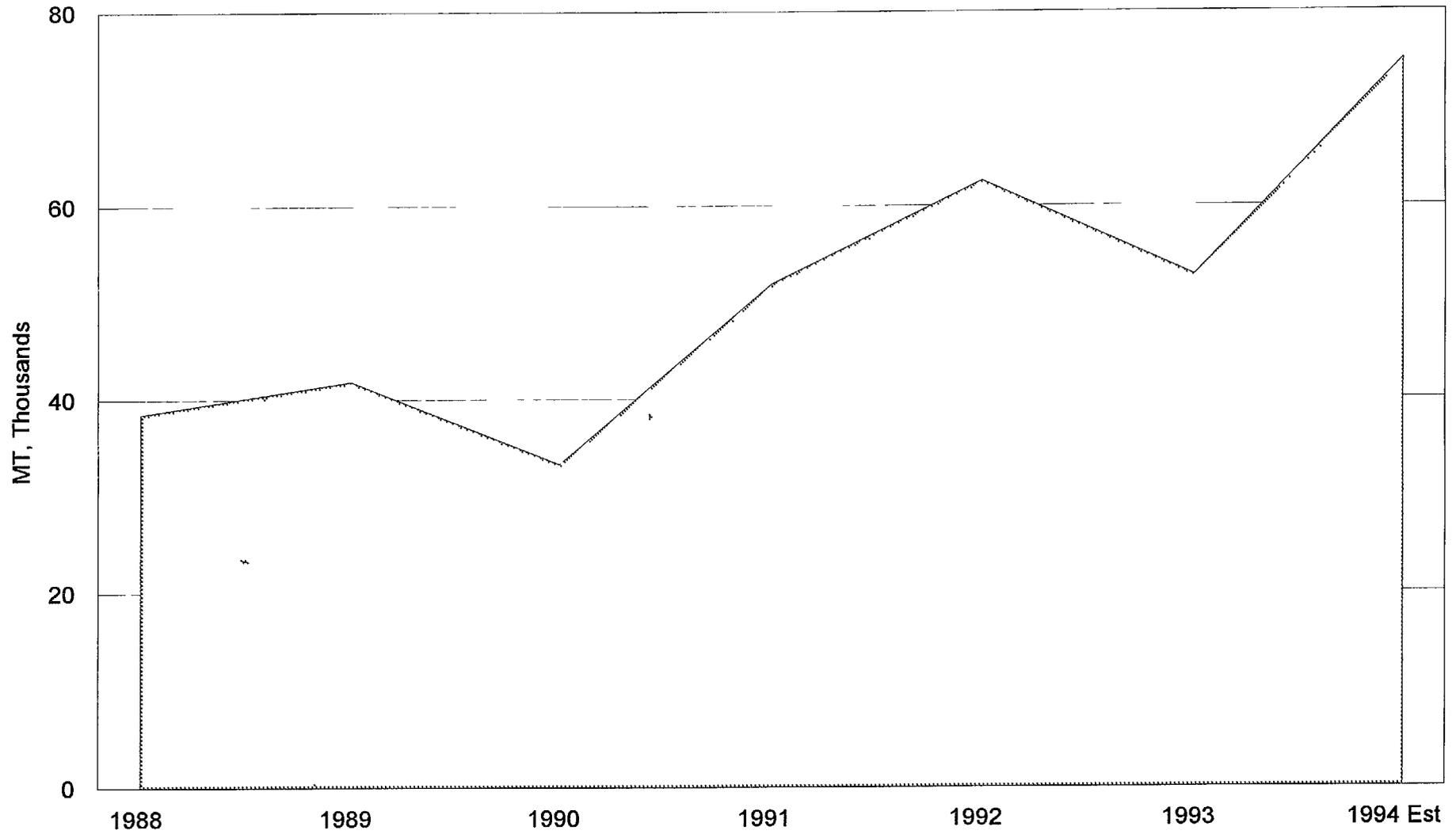
In conjunction with state subsidized research stations, Unifruco selects varieties deemed profitable for export. For example, trial plantings are currently being conducted on different varieties of grapes, especially those with early or late seasons. The company also issues strict grading and sizing standards. If producers supply less than the top quality demanded, they are fined and made to pay for all transportation costs back to the grading facility and farm. Unifruco has its own cold chain and packhouses, as well as standard name brand packaging. Finally, the company owns over one hundred ships. The specialized grape ships are generally small (to allow for more frequent trips) and containerized, with elaborate controlled atmosphere equipment.

Commercial Alliances

Unifruco recently merged its wholly-owned Cape Brands subsidiary with the U.K.-based importer Outspan to form a new joint-venture company, Capespan International PLC. Capespan International manages all promotion, transportation and sales of South African fruit throughout Europe.

Sources: Fresh Produce Journal, Eurofruit, Eurostat and Unifruco

EU Imports of Fresh Table Grapes From South Africa



Source Eurostat, USDA

Note 1993 Decrease due to unfavorable climatic conditions

**WORLD MARKET OVERVIEWS
FOR SELECTED
PROCESSED PRODUCTS**

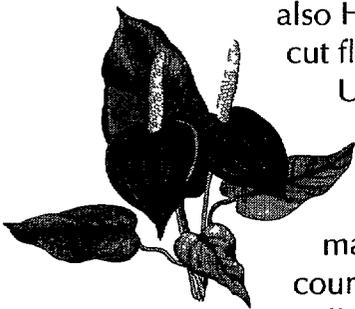
ANTHURIUMS

UNITED STATES

Anthurium imports doubled between 1989 and 1993 to 1.8 million stems (CIF US\$1 million) with the market supplied by relative newcomers. The Dominican Republic was the top exporter in 1993 (651.2 thousand stems, CIF US\$368 thousand), though it just began shipping to the U.S. in 1992. Trinidad and Tobago, the second-largest supplier (546.9 thousand stems, CIF US\$296 thousand), was also up dramatically from 1989 levels (9.1 thousand stems, CIF US\$15 thousand). Mauritius rounds out the list of the top three suppliers in 1993 (225.5 thousand stems, CIF US\$164 thousand) again with noteworthy growth since 1989. Jamaica, once the dominant export supplier (95% of volume in 1989), has slipped to only a 13% share of 1993 import volume (222.8 thousand stems, CIF US\$164 thousand).

In 1993, imports were highest during the periods December - February and April - June.

Hawaii remains, however, the largest supplier of anthuriums in the U.S. (5.9 million stems in 1993). Anthuriums are also Hawaii's largest single cut flower export to non-U.S. destinations (3.8 million stems in 1993). Hawaiian exports to both the mainland U.S. and other countries totaled US\$7.5 million in 1993, with size breakdowns as follows: 14% miniature, 20%



small, 32% medium, 24% large, and 10% extra-large.

EUROPE

The EU groups anthuriums in a large "basket" category for reporting purposes. However, weekly price and volume reports from the Aalsmeer (Holland) flower market in 1994 provide solid indicators as to the size and value of the EU market.

In 1994, more than 10 million anthurium stems passed through the Aalsmeer auction according to ITC/MNS (reports are available for only 43 weeks) with an average price of 160 nfl cents per stem (average high of 964 nfl cents average low of 43 nfl cents). Volume spiked in the beginning of February due to both Valentines' Day and a local festival (Carnival '94), followed by a period of low supplies and high prices from February through April. May through September was characterized by higher volumes and lower yet relatively stable prices, while mid-September through the end of October reflected increasing demand and increasing prices (probably attributable to Dutch green house supply).

Germany is the top EU market for anthuriums. Importer price reports issued by the UNCTAD/GATT International Trade Center (ITC) show the Netherlands supplying product year-round, and receiving a higher price (US\$1.39/stem) than product from Mauritius (US\$0.70/stem), the only other supplier reported. Mauritian supplies entered chiefly during the first five months of the year.



Italy is one of the largest importers of tropical flowers in the world, second only to Japan, and ranks as the second largest import market for anthuriums in the EU. ITC price reports indicate supply from Mauritius, the Netherlands and Colombia in 1994, and reflect much lower prices than in Germany. Mauritius supplied every month except June and July at an average price of US\$0.43/stem, with the Netherlands supplying year-round at US\$1.01/stem. Colombian supply was only reported in January, and was valued at US\$1.50/stem.

France is a much smaller market, but prices are often higher than in either Germany or Italy. Product from Mauritius received an average price of US\$1.23/stem in 1994 with

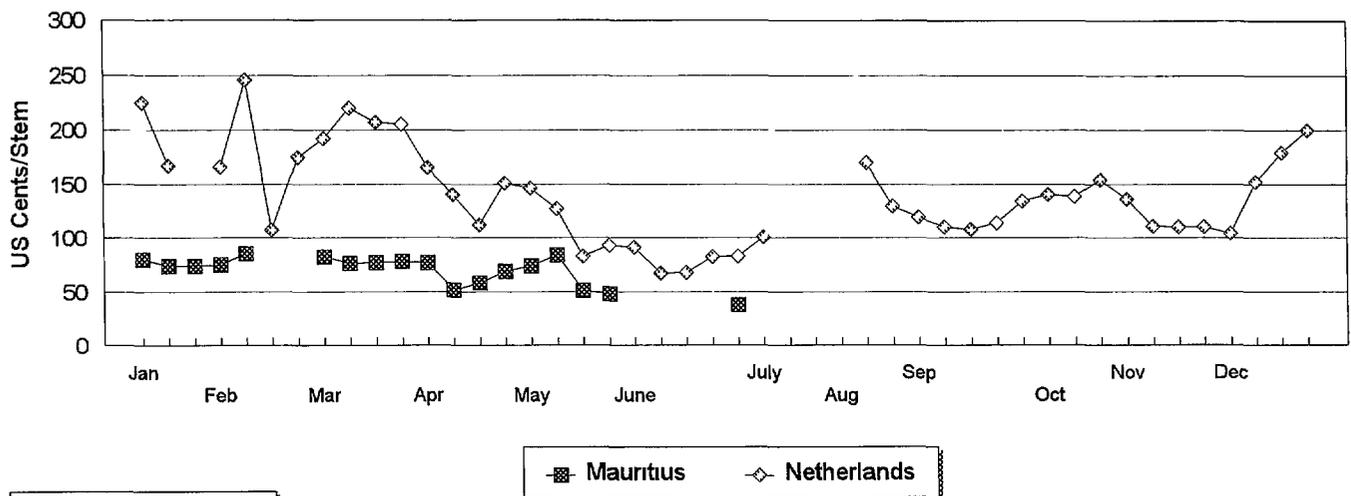
Dutch product averaging US\$1.57/stem. Anthuriums from Martinique sold for an average US\$1.11/stem. These three nations, along with Guadeloupe, are the top suppliers to the French market.

ASIA

Japan is the world's largest importer of tropical flowers, and is thought to be the fourth largest consumer of anthuriums (behind Germany, Italy, and the U.S.). Anthuriums are not broken out in Japanese trade statistics, although industry sources report that Hawaii is the principle supplier of anthuriums to Japan, with the Philippines, Fiji, and Malaysia providing supplemental imports.

Figure 1 German Importer Selling Prices for Anthurium

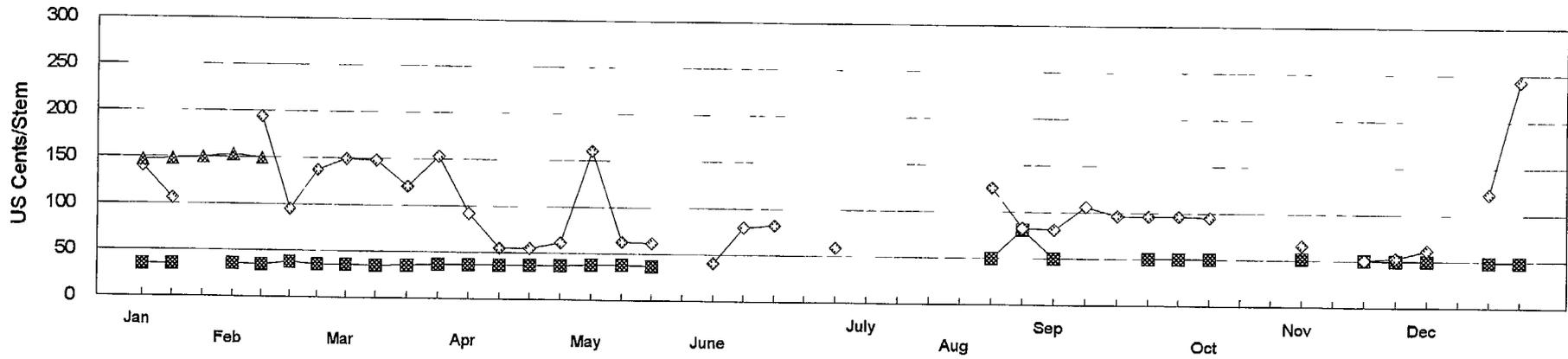
US Cents/Stem, 1993



Source: ITC/MNS Geneva

Figure 2 Italian Importer Selling Prices for Anthurium

US Cents/Stem 1993

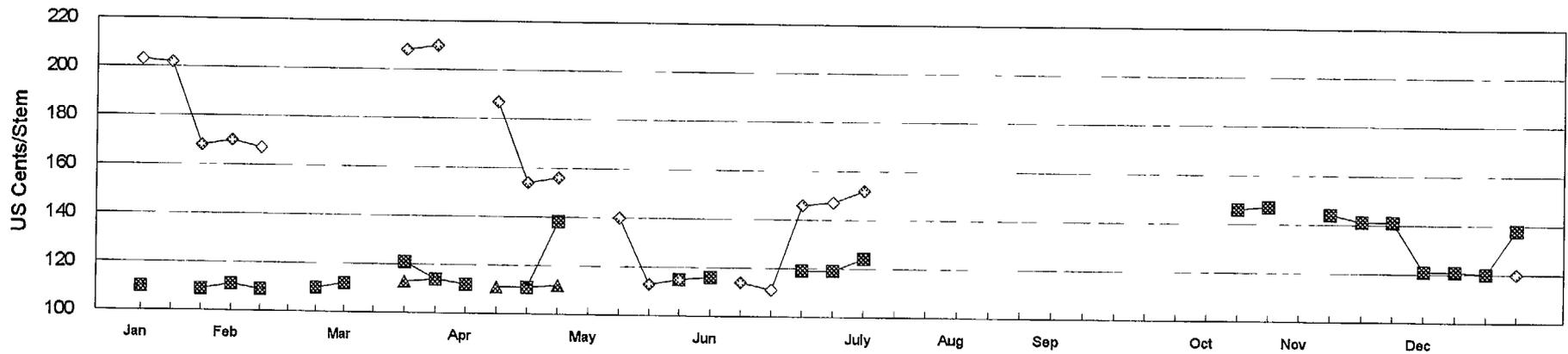


Source ITC/MNS Geneva

■ Mauritius ◇ Netherlands ▲ Colombia

Figure 3 French Importer Selling Prices for Anthurium

US Cents/Stem 1993

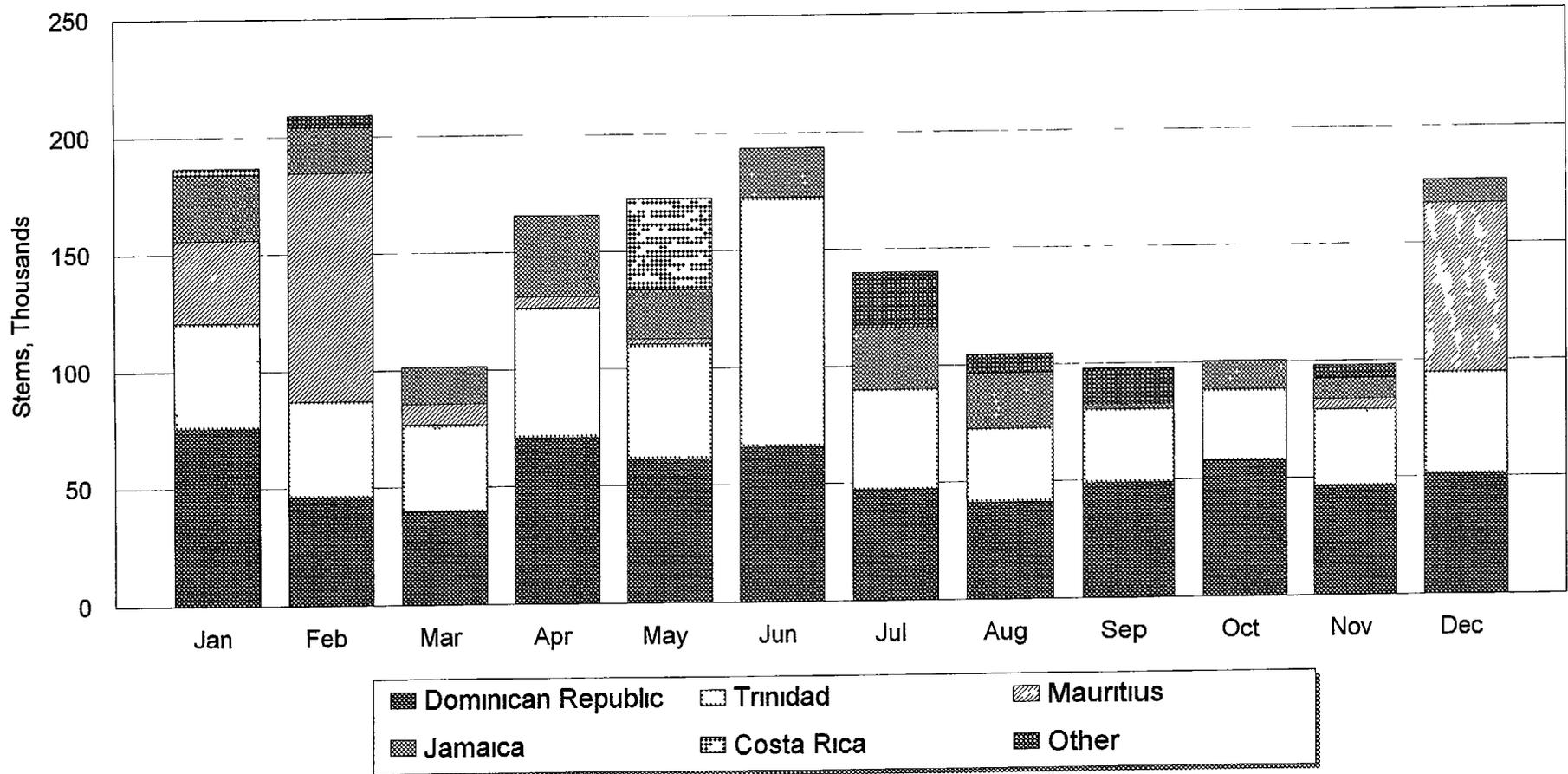


Source ITC/MNS Geneva

■ Mauritius ◇ Netherlands ▲ Martinique

Figure 4 US Imports of Anthuriums

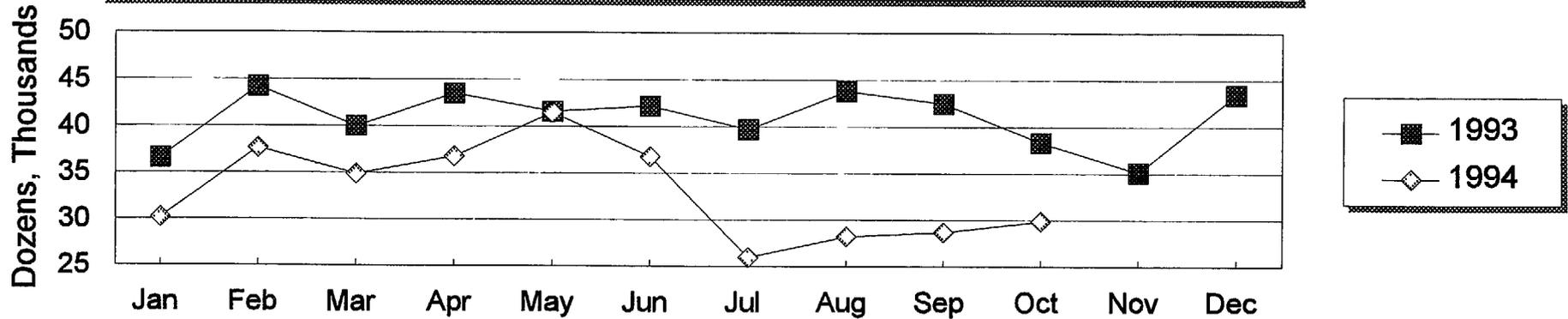
1993, Stems



Source NTDB

Figure 5: Hawaiian Shipments of Anthuriums

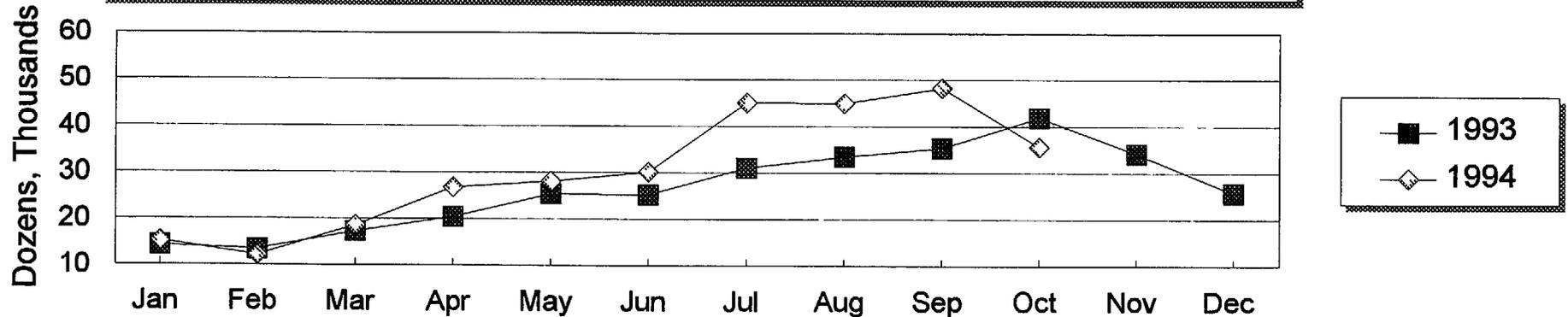
To Mainland USA



Source Hawaii Agriculture Statistics Service

Figure 6: Hawaiian Shipments of Anthuriums

Foreign Exports



Source Hawaii Agriculture Statistics Service

ASPARAGUS

UNITED STATES

Imports of fresh asparagus doubled over the period 1989-1993 to 31.4 thousand MTs, (CIF US\$49.7 million) despite the fact that the U.S. is the world's largest asparagus producer. The largest non-domestic supplier was Mexico in 1993 (23.1 thousand MTs, CIF US\$33.0 million) which supplied mainly during the months of February and March, with secondary amounts arriving in January, July and August. Peru, the second largest exporter to the States (5.6 thousand MTs, CIF US\$11.6 million), picks up as Mexican supply is diminishing in August and continues through December. Peru has taken away market share from Chile, who in 1989 supplied 12% of volume, but slipped to only 5% in 1993. Guatemala is the only other supplier (478 MTs, CIF US\$ 653.0 thousand), and has also increased its market share between 1989 and 1993.

EUROPE

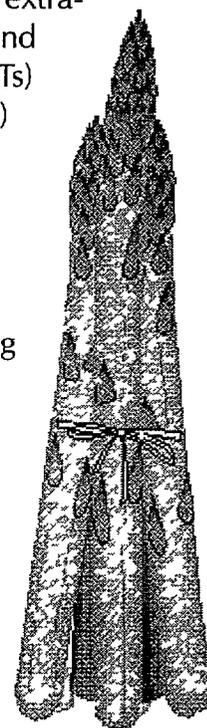
Several EU member nations are major producers of asparagus. Statistics show that of the 55.0 thousand MTs (ECU 180.1 million) imported in 1992 for example, nearly 90% was supplied by intra-EU trade. Top suppliers were Spain (19.1 thousand MTs, ECU 43.0 million), Greece (12.2 thousand MTs, ECU 51.0 million), the Netherlands (8.2 thousand MTs, ECU 39.5), and France (6.7 thousand MTs, ECU 23.1).

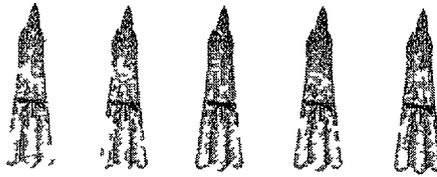
The EU imported 5.9 thousand MTs (ECU 17.9 million) of asparagus from extra-EU sources in 1993. The U.S. was the top sup-

plier (1.3 thousand MTs), followed by Peru (993 MTs), Poland (927 MTs), South Africa (593 MTs), Morocco (565 MTs), and Chile (485 MTs).

Germany is a major asparagus producer, but still imports to meet high domestic demand. Most product is sourced from within the EU, mainly from Greece (11.9 thousand MTs in 1992) and Spain (9.7 thousand MTs), with additional intra-EU supply from the Netherlands (7.6 thousand MTs) and France (5.4 thousand MTs).

While intra-EU supply can be safely assumed to have again dominated Germany's 1993 imports, extra-EU countries supplied more product to Germany than to any other EU member in 1993 (2.0 thousand MTs, ECU 4.8 million). The German extra-EU import market increased 49% in value and 40% in volume between 1989 and 1993. Chief extra-EU suppliers in 1993 were Poland (927 MTs), South Africa (426 MTs) and the United States (243 MTs). These amounts reflect a 211% volume growth in four years by Poland, and a 251% volume growth in the same time for the United States. Polish supply arrives almost exclusively during Germany's heaviest import season (April-June), the time when most intra-EU supply is also imported. The import season for US product is slightly longer, extending from February through May. South African product (which received a much higher unit value) entered in the last three





months of the 1993, facing little competition from intra-EU supply

The United Kingdom is the only EU member country to import more asparagus from sources outside the EU than within, although overall import volume has been shrinking since 1988. Spain is the major intra-EU supplier, but the U S is the top supplier (518 MTs in 1993). Other extra-EU suppliers include Peru (377 MTs), Mexico (101 MTs), and Chile (55 MTs). Smaller amounts were also supplied by Thailand, Argentina, South Africa, and Egypt. Industry sources report that Thailand's supply is dominated by specialty products (baby spears and tips).

Despite its current position, U S volume has decreased 49% between 1988 and 1993. Mexican and Chilean exports have also decreased over the same period, while Peru's volume to the UK has grown by 639 percent.

The UK's import market is less seasonal than that of other EU nations. Although British imports spike in April and May as the result of Spanish supply, extra-EU supply remains fairly consistent through the year. US supply, which enters almost entirely in the first half of the year, is complemented by Peruvian supply entering mostly in the latter half of the year.

Italy is supplied mainly by France and Spain, accounting for 57% and 21%, respectively, of total 1992 import volume of 4.5 thousand MTs (ECU 11.1 million). Extra-EU imports decreased by 43% between 1988 and 1993. The U S remained the main extra-EU supplier in 1993 (300 MTs), despite a

54% drop in volume since 1988. Chile and Peru are the other two main extra-EU suppliers, with Peru gaining market share (131% increase in the past five years), despite an otherwise downwards trend.

The period March - May represents Italy's biggest import season, supplied almost totally by Spain. Extra-EU supply arrives from the US in the first six months of the year, and from Chile and Peru in the second half of the year.

France's extra-EU imports of asparagus are minimal (540 MTs, ECU 2.2 million in 1993), owing to high domestic production supplemented by intra-EU supply from Spain. Most imported supply enters in April and May from Spain.

However, extra-EU imports have grown by 158% in the last five years, with Morocco the most successful extra-EU supplier (going from no imports in 1988 to 174 MTs in 1993). Other extra-EU suppliers in 1993 included the United States and Tunisia. Extra-EU imports are highest in March and April.

ASIA

Japan's asparagus imports have jumped from 11.9 thousand MTs (US\$56.0 million) in 1988 to 18.3 thousand MTs (US\$89.2 million) in 1993. The United States is Japan's top supplier (5.6 thousand MTs, US\$26.4 million in 1993), up 18% in volume over 1988 levels. Mexico (2.8 thousand MTs, US\$14.4 million in 1993) supplied 15% less volume in 1993 than in 1988 and has been surpassed by Australia as the second largest supplier.



Australian asparagus exports to Japan have almost doubled in volume since 1988 (3.5 thousand MTs, \$20.3 million in 1993). Australian product entered during the period August-December, complementing U.S. supply which mainly enters the market from January to September (peaking in February-May).

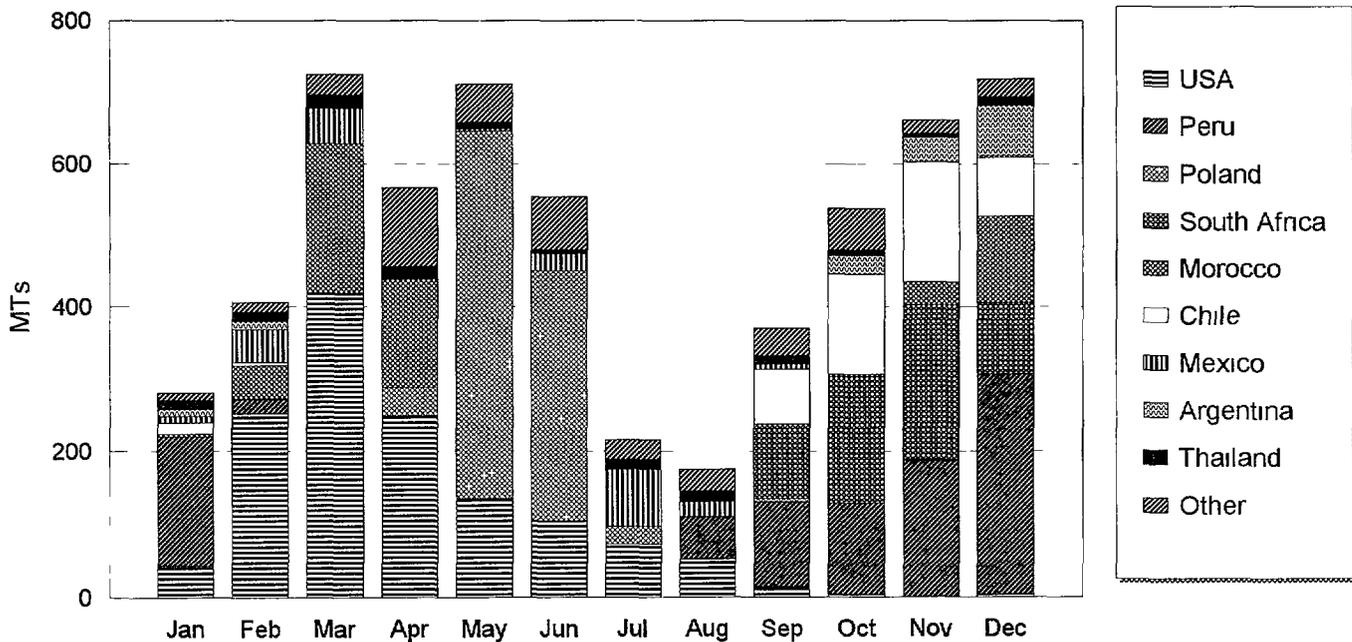
Both Thailand and the Philippines have witnessed strong export growth to Japan

1993 supply from the Philippines (2.8 thousand MTs, US\$8.6 million) is up from zero in 1988 for example, while the negligible Thai supply in 1988 (100.3 MTs, US\$416 thousand) has increased to 2.0 thousand MTs, (US\$10.8 million) in 1993. Both countries supply year-round.

Other suppliers include Peru, France, the Netherlands, Ecuador, Guatemala and Belgium.

Figure 1 EU Imports of Fresh or Chilled Asparagus

Extra-EU 1993



Source Eurostat

Figure 2 US Imports of Fresh/Chilled Asparagus
1989 - 1994, MTs

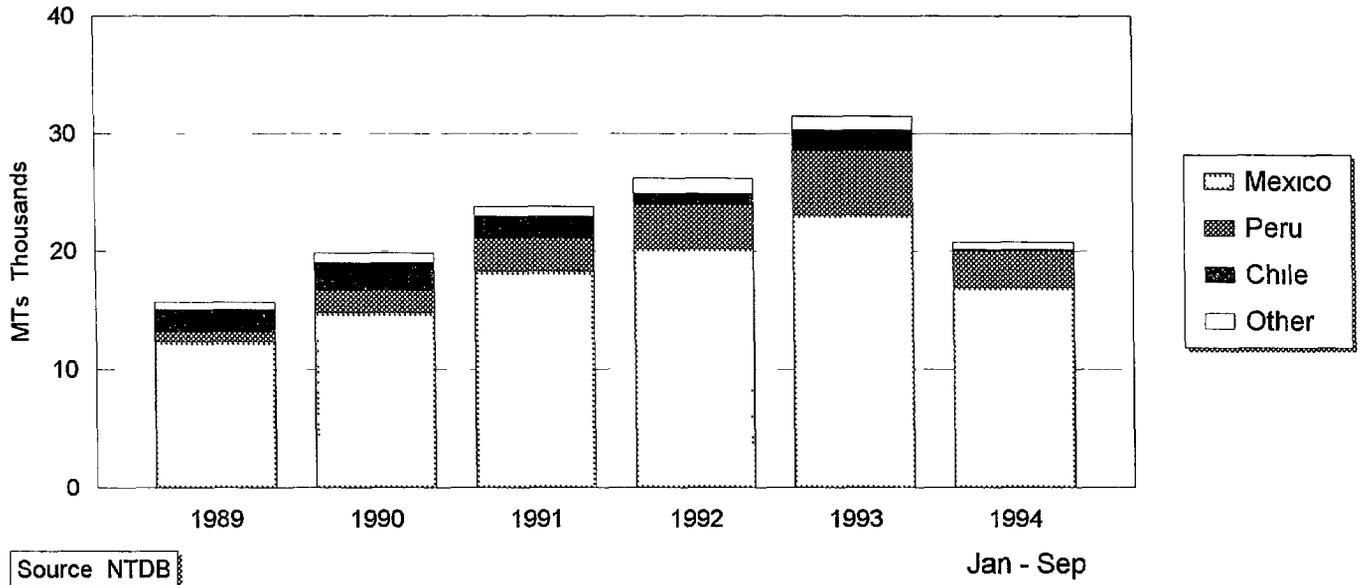
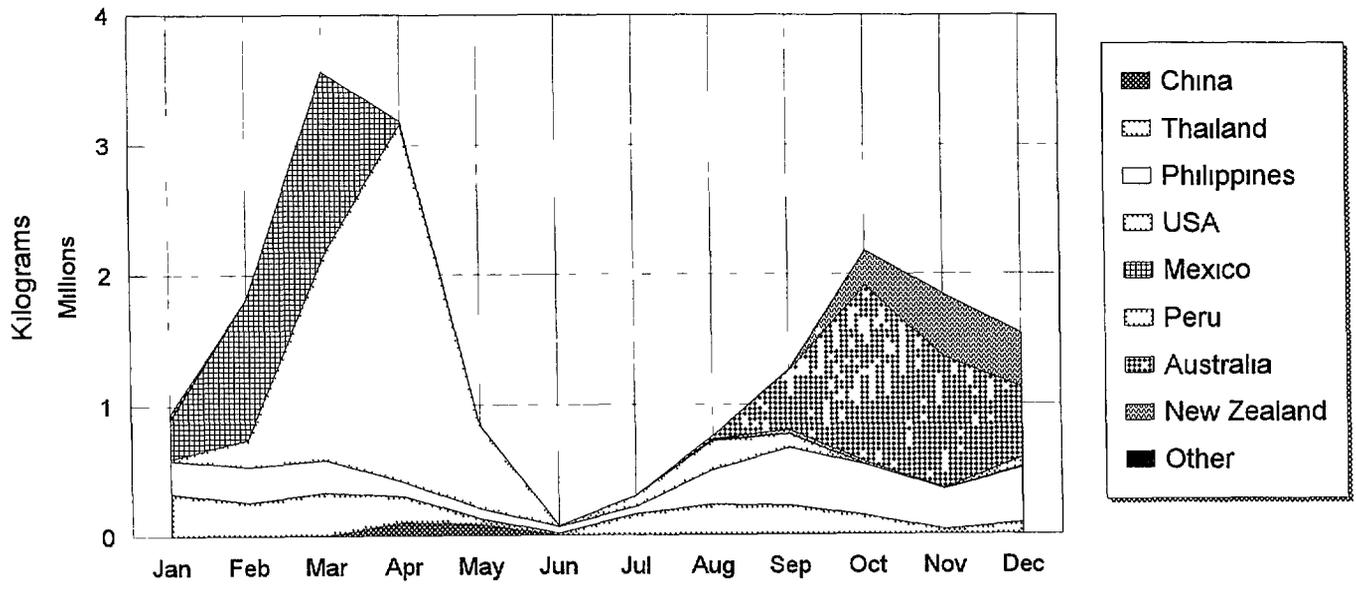


Figure 3 Japanese Asparagus Imports by Month
Kilograms, 1993



1994

Table 1 European Importer Selling Prices for Fresh Asparagus

Importer	Franc (FF/kg)					Germany (DM/kg)							
	Chile	Peru	Spain wh	Spain	USA	Argentina wh	Chile	Me I	Peru (Ecuador)	South Afr	South Afr wh	Spain wh	USA
Jan 13													
Jan 20		40 00			38 00			10 00					9 40
Jan 27		40 00							11 50				10 00
Feb 3					41 00								11 00
Feb 10					42 00								11 30
Feb 17					46 00								
Mar 3	31 00	(Morocco wh)			41 00								11 00
Mar 10													10 00
Mar 17			30 00	34 00	28 00							8 00	11 10
Mar 23			27 00	30 00									9 00
Mar 31			22 00	26 00									10 00
Apr 14													
Apr 21													
Apr 28													
May 6													
May 13													
May 19													
May 25													
Jun 1													
Jun 8													
J n 15													
J n 22													
J 29													
J 16													
Jul 14													
Jul 21													
Jul 28													
Aug 3													
Aug 8													
Aug 17													
Aug 24								12 10					
Aug 31													
Sep 7			38 00										
Sep 14			40 00					9 60			12 50		
Sep 22	40 00		40 00										
Sep 28	40 00		40 00					9 35		8 50		8 00	
Oct 5	34 00	40 50						11 20		10 00	10 50		
Oct 13	30 00					6 00		9 60		7 50	6 50		
Oct 20	29 00	34 00				8 50		10 00			6 50		
Nov 3	27 00							7 50			7 50		
Nov 11	29 00	29 00	29 00	(P ru wh)		7 80		9 60			7 80		
Nov 17	32 00		30 00	(P ru wh)				10 00			8 50		
Nov 23						10 25		9 60			10 50		
Nov 30	28 00		29 00	(P ru wh)				9 60			10 00		
Dec 6	29 00					9 00		10 80			9 00		
Dec 14													
Dec 21													
Dec 28													

33

1994

Importer	Holland (FL/kg)										UK (£/kg)										
	Guatemala	Mexico	Mexico tip	Peru	Peru wh	Peru tips	South Afr	Spain	Thal	Thal tips	USA	Argentina	Chile	Egypt	Guatemala	Mexico	Peru	South Afr	USA	Zimbabwe	
Jan 13	13 00			13 25	13 00					25 00											
Jan 20	13 40			12 00	11 50					24 00			6 60								
Jan 27	13 40		20 00	13 40	12 50								5 50								
Feb 3	13 40		21 00	13 25	13 00	26 00			11 50	23 00			4 40			6 50					
Feb 10	13 50			13 50	14 00				11 50	23 00						4 85					
Feb 17	12 40			13 50	14 50				12 50	23 00						2 50					
Mar 3	12 40	15 90	18 00	13 50	11 70					22 00			5 00		6 60						
Mar 10	13 40	12 75		9 75						24 50	11 50				(France wh)	4 80	5 60		5 70		
Mar 17	11 50	12 00			10 00					22 00	11 10								4 40		
Mar 23	11 50	12 00								22 00	10 80								4 40		
Mar 31	11 00	13 00						12 50	10 00	(Spain wh)									4 40		
Apr 14																					
Apr 21																					
Apr 28																					
May 5																					
May 13																					
May 19																					
May 25																					
J n 1																					
J n 9																					
J 15																					
J n 22																					
J 29																					
Jul 6																					
Jul 14																					
Jul 21																					
Jul 28																					
Aug 3																					
Aug 8																					
Aug 17																					
A g 24	12 60			14 00											5 30	4 45			5 50	3 75	
A g 31	12 10			11 40												4 40			5 00		
S p 7	12 75			12 50	16 00												5 00		5 00		
S p 14	12 20			12 60	16 00	23 00	13 00										4 40		4 85	4 40	
S p 22	11 50			11 50	15 00		10 50										4 20		4 60	4 40	
S p 28	11 00			12 50	22 00	9 50											3 50		4 60		
Oct 5	11 00			10 25	11 50	23 00	11 00										3 75	3 60			
Oct 13				10 00	10 50						4 00	4 00				5 25	3 00		4 60		
Oct 20				9 80	9 00						4 00	3 50				4 50	3 30		4 00	4 00	
Nov 3				9 50	8 20	20 60					3 75	3 50				3 40	3 50		4 20	4 20	
Nov 11				10 00	8 60	20 25					2 60	2 80				2 80	2 80				
Nov 17				10 00	8 60	19 50					4 20	3 75	2 20			3 50	3 85		2 40		
Nov 23	9 60	(Argentina)		10 00	8 60	18 50						4 60					4 30		4 20	3 30	
Nov 30	10 25	(Argentina)		10 80	10 30	18 50						4 20					4 20		3 30		
Dec 6	11 00	(Argentina)		11 20	10 80	18 50						4 20	21 50				3 30		3 30	4 60	
Dec 14				11 20	12 00							4 40					4 20		3 60	4 60	
Dec 21																					
Dec 28																					

Source: ITC MINSIG via

GINGER

UNITED STATES

The United States imported 61% more fresh ginger in 1993 than it did in 1989. Brazil and Indonesia were the dominant suppliers in 1993, each providing 22% of total import volume (8.1 thousand MTs). Secondary suppliers were India (14% of volume), Costa Rica (13%), Fiji (9%), and China (6%). Fiji and China slipped from traditional roles of supplying the bulk of the US market, and were usurped by Brazil and Indonesia. However, the available partial year reports for the first nine months of 1994 show a strong comeback by China. The US reports importing 11.3 thousand MTs (CIF US\$13.8 million) in the first 9 months of 1994, an increase of 40% over total 1993 imports. China supplied 33% of the volume for the first nine months of 1994, Brazil (19%), Indonesia (19%), India (8%), Thailand (8%), Costa Rica (6%), and Fiji (3%).

Half of 1993 imported supply entered the US during the four-month period August through November (including the majority of Brazilian supply).

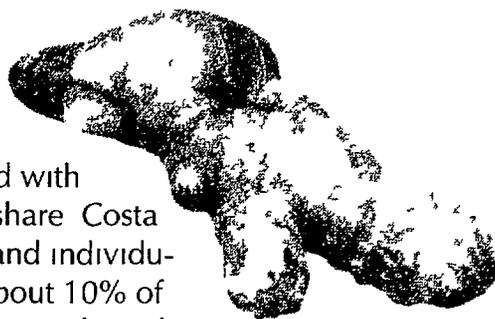
EUROPE

Total 1993 extra-EU fresh ginger imports reached 10.9 thousand MTs (ECU 11.2 million), up almost 60% from 1988 import levels. Although the EU sources fresh ginger from at least 38 different countries, only a few dominate the market. Brazil (32% of volume), Nigeria (15%), China (8%), Thailand (8%), and Costa Rica (7%).

Monthly import volumes in 1993 remained

fairly consistent for most of the year (700 - 900 MTs), with the exception of July and August (1.4 thousand MTs each month).

The United Kingdom imports twice the volume of fresh ginger than any other EU country, and more than half of total EU imports. Total 1993 extra-EU imports (6.5 thousand MTs, ECU 5.9 million) have grown by 64% in terms of both volume and value since 1988. Nearly a third of 1993 annual imports entered either in July or August. Volume imported for the rest of the year varies between 350 and 450 MTs per month, with supply dipping only in April (277 MTs). Brazilian supply, which arrived almost exclusively in the last six months of 1993, accounted for 30% of annual volume. Nigeria, which supplies almost year-round, followed with a 20% market share. Costa Rica and Thailand individually supplied about 10% of import volume, mainly in the first half of the year. Other suppliers include Indonesia (6%), South Africa (4%), and India (3%).



The Netherlands' imported volume and value have more than doubled over the period 1988-1993, (with 1993 extra-EU imports totaling 2.6 thousand MTs or ECU 2.6 million). The bulk of 1993 imports was supplied by Brazil (47%), which supplied year-round, peaking sharply from August through October. Additional supply was sourced from Nigeria (12%), Thailand (8%), Indonesia (6%), and India (5%). Monthly



import volume fluctuated between 130 and 225 MTs, increasing to higher levels only in August when volume reached 485 MTs, and in October when volume was reported at 317 MTs. As a major European point of entry for agricultural goods, the Netherlands imports more than it consumes. Fresh ginger re-export volume in 1992 was reported at 708 MTs (1993 figures unavailable), most destined for France and Germany.

Germany's 1993 extra-EU imports (1.1 thousand MTs, ECU1.6 million) were approximately 20% larger than its 1988 imports, making it the third largest direct EU importer. It also imports from other EU nations, particularly the Netherlands. China accounted for 74% of extra-EU imports, with the remainder coming mostly from Hong Kong (8%), Nigeria (6%), and Brazil (5%). 1993 import seasonality was influenced by Chinese supply. Imports were highest in July, although almost no product was sourced from non-EU suppliers in August.

France is the fourth largest EU importer, although its 1993 extra-EU imports were only half the size of Germany's. A total of 598 MTs (ECU 817 thousand) were imported from sources outside the EU in 1993, mainly from

Brazil (48% of volume). Product is also sourced from China (15%), Indonesia (14%), and the United States (7%). Re-exports from Holland are the single largest source of French imports. French imports in 1993 were highest in March and during the period June - August.

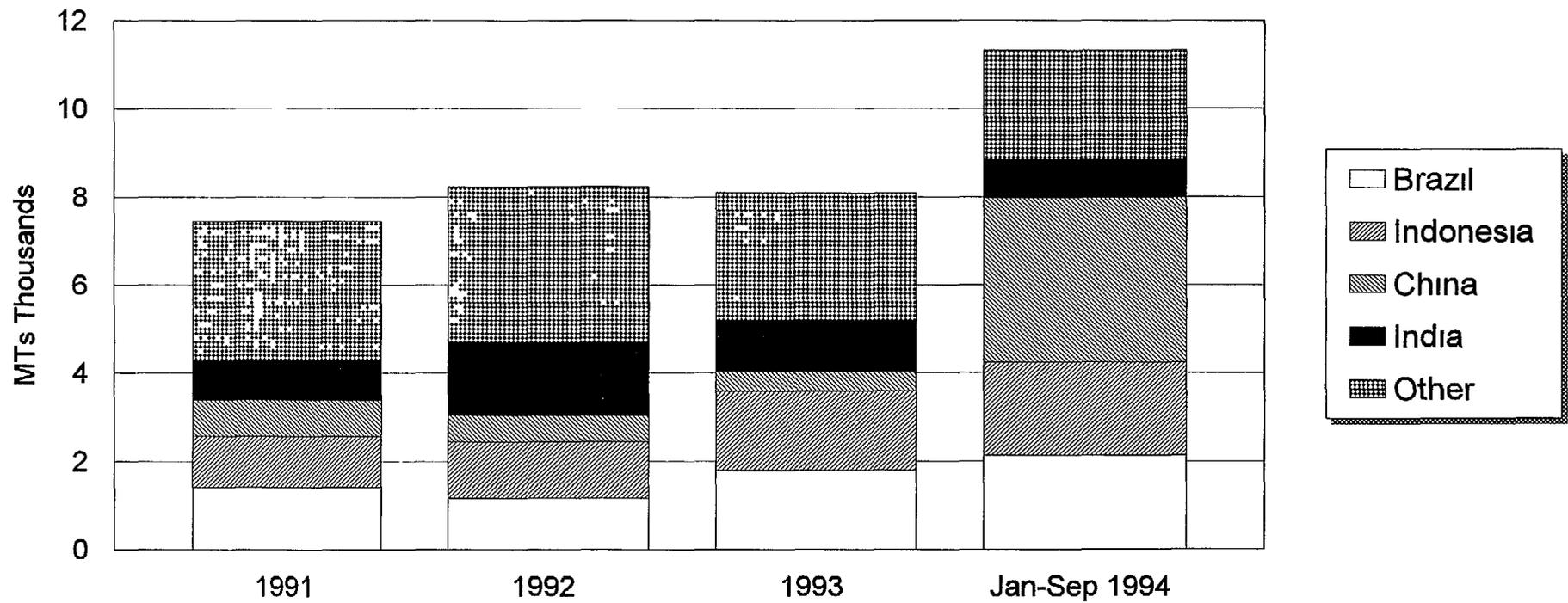
ASIA

Japan imported more ginger in 1993 than did the United States and the EU combined (26.6 thousand MTs, ¥3.9 billion). Chinese supply accounted for more than half of total import volume (14.2 thousand MTs, ¥272.0 million). Indonesia was the second largest source of supply (6.7 thousand MTs, ¥730.9 million). Other important suppliers included Taiwan (3.4 thousand MTs, ¥842.5 million), and Thailand (1.8 thousand MTs, ¥272.0 million).

Singapore's imports were recorded at 3.0 thousand MTs (S\$2.3 million) in 1993 for fresh and dried product. Malaysia was the largest supplier in 1993 with imports accounting for 69% of total volume and 46% of total value. Other suppliers included China (465.3 MTs, S\$878 thousand), and Burma (290.1 MTs, S\$187 thousand).

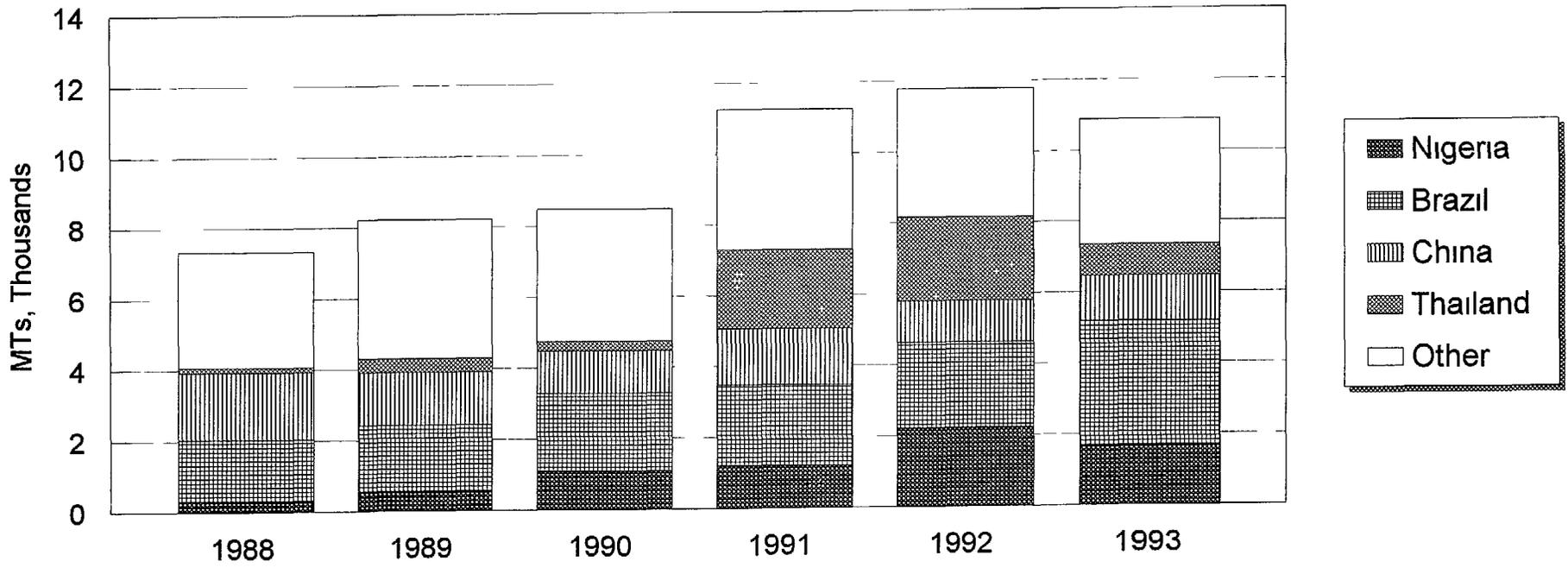
Figure 1: US Imports of Ginger

1991-1994, MTs



Source NTDB

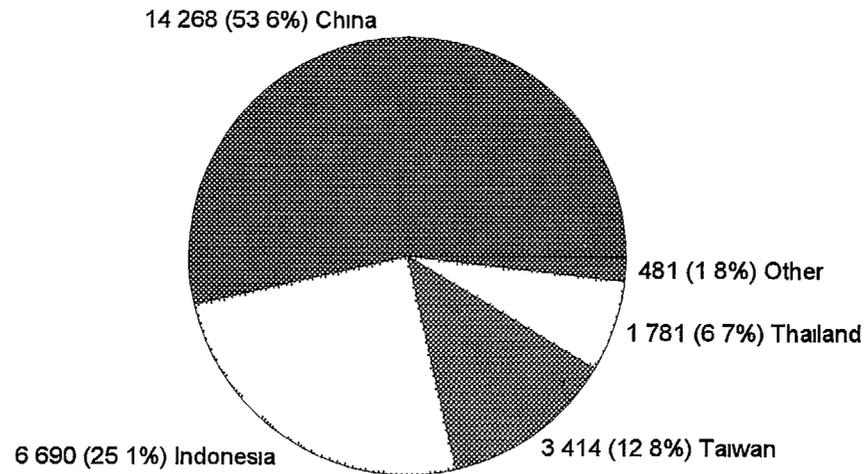
Figure 2: EU Imports of Fresh Ginger
Extra-EU, 1988-1993



Source Eurostat

Figure 3 Japanese Imports of Fresh Ginger

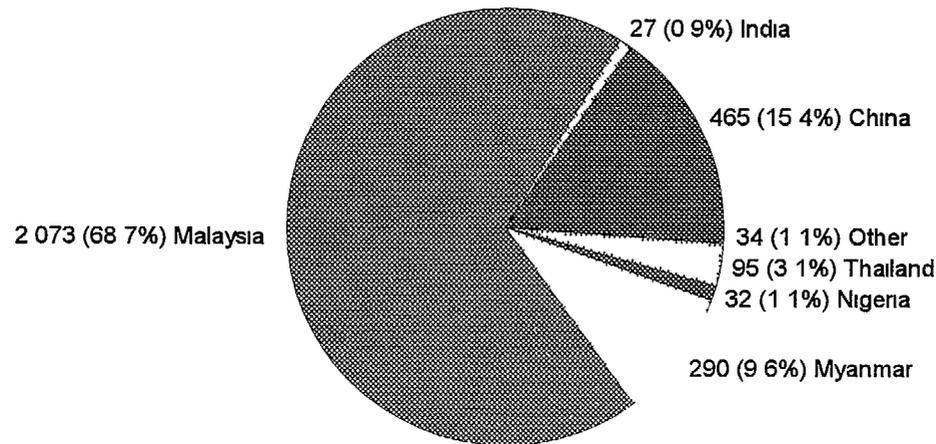
1993 MTs



Source Japan Tariff Association

Figure 4 Singapore Imports of Fresh or Dried Ginger

1993 MTs



Source Singapore External Statistics

TABLE 1 EUROPEAN IMPORTER SELLING PRICES FOR FRESH GINGER
 JULY 1993 JULY 1994 (all prices per KG in importing country currency)

1993	Importer	France (Francs per KG)					Germany (Marks per KG)					
		Brazil (air)	Brazil (sea)	Hawaii	Indonesia (air)	South Afr (air)	Thailand	Brazil (air)	Brazil (sea)	China (sea)	Indonesia (sea)	South Afr (air)
1993	Jul 28	20 50						6 25				
	Aug 4	19 50						4 45			5 20	
	Aug 11	18 00						4 60				
	Aug 19		13 00						3 85			
	Aug 26		13 00						3 90			
	S p 2	20 50	14 50					4 20	3 80			
	Sep 9	19 00	12 50			15 00		4 80				
	Sep 16		13 00					4 80				
	S p 23	19 00	15 00					4 25				
	Sep 30	22 00	14 00					4 20				
	Oct 7		14 50					4 80	3 80			
	Oct 14	22 00	15 00						3 50			
Oct 21	21 00	15 00					4 30	3 00				
Oct 28												
Nov 4												
Nov 11	20 00	13 00						3 00				
Nov 18												
Nov 25	21 00	13 00	25 50				4 00		3 00			
Dec 2	21 00	13 00	25 50				4 00		2 80			
Dec 9	22 00	14 00	25 00				3 60		2 60			
Dec 16	20 00	13 00	25 00				3 60		3 20			
Dec 23	20 00	14 00	24 00				3 60		3 20			
Dec 30												
1994	Jan 6		14 00	24 50				4 20				
	Jan 13											
	Jan 20		13 50	21 50				3 60			4 00	
	Jan 27											
	F b 3		13 00					5 20	4 20			
	Feb 10		14 00	21 50		17 00		5 10				
	Feb 17	20 00	15 00	21 50		18 50						
	Feb 24											
	Mar 3											
	Mar 10		14 00					6 00			5 50	
	Mar 17						20 00				5 00	
	Mar 23						17 00					
	Mar 31											
	Apr 7											
	Apr 14				17 00		19 00	6 40			5 00	
	Apr 21				18 00		19 00			6 00	4 00	
	Apr 28				23 00		23 00			6 00	4 00	
	May 5											
	May 13				21 00	23 50	23 00				7 00	
	May 19				20 00		23 00	8 40		6 50	6 00	
	May 25				21 00		23 00	5 80		5 75	5 60	5 80
	Jun 1				18 50	20 00	20 00	7 20		6 50	7 00	5 40
	Jun 9				19 00	19 00	18 00	6 80		5 75		5 40
	Jun 15	20 00			19 00	20 00		6 00		5 00	4 80	5 20
Jun 22	19 00			18 00	22 50	16 00	6 00		5 25	5 00	5 20	
Jun 29	18 00			21 00	20 00	15 00	5 50		3 75		4 70	
Jul 6												
Jul 14	18 00			21 00	20 00	15 00	5 50		3 75		4 70	

1993	Importer	Netherlands (Gulden per KG)						UK (Pounds per KG)				
		Brazil (sea)	Brazil (air)	China (sea)	Costa Rica (sea)	Indonesia (sea)	South Afr (air)	Thailand (sea)	Brazil (sea)	Brazil (air)	China	Indonesia (sea)
1993	Jul 29		5 00		4 40		5 25	4 25	1 10		1 10	
	Aug 5		5 00		4 10		5 10		1 10		0 80	
	Aug 11		4 25		3 90		4 75					
	Aug 19	3 70	4 25				5 00		1 10		1 00	
	Aug 26	3 60	4 25				4 25		1 35		0 60	
	Sep 2	3 35	4 00				4 50		0 80		0 65	
	Sep 9	3 25	4 12		3 00		4 60				0 80	
	S p 19	3 15	4 00		3 00				1 00		0 60	
	S p 23	3 10	3 75		2 50				0 95		0 80	
	S p 30	3 30			2 50				1 05		0 80	
	Oct 7	3 35			2 50				0 70		0 40	
	Oct 14	3 30			2 50				0 90		0 55	
Oct 21	3 30			2 50				0 90		0 90		
Oct 28	3 35			2 50				0 65		0 40		
Nov 4												
Nov 11	3 80				2 50			1 00		0 50		
Nov 18												
Nov 25	3 60				2 50			1 00		0 55		
Dec 2	3 60				2 25			1 00		0 60		
Dec 9	3 85				2 50			1 00				
Dec 16	3 75				2 50			1 07				
Dec 23		4 25						1 20				
Dec 30												
1994	Jan 6	3 60			4 30					1 55	1 10	
	Jan 13											
	Jan 20	3 60			4 00					1 40	1 10	
	Jan 27	4 20			4 40					1 40	1 05	
	Feb 3	4 25			4 20				1 15		0 90	
	Feb 10	4 05			4 30				1 35		1 10	
	Feb 17	4 10			4 40			4 30	1 20		0 55	
	Feb 24											
	Mar 3											
	Mar 10	4 50			4 50	3 75		4 60		1 80	1 50	
	Mar 17							5 00		1 00	0 75	
	Mar 23											
	Mar 31				5 00	5 50	5 00	5 75			0 90	
	Apr 7											
	Apr 14				5 00	5 50	5 00	6 35				
	Apr 21				5 25	5 75	5 25	6 35				
	Apr 28				6 20	6 00	5 75	6 20	1 10	1 65	1 40	
	May 5											
	May 13				6 50	6 00	5 70	6 35		1 55	1 45	
	May 19				5 75	6 30	5 75	6 30		1 60	1 10	
	May 25				5 25	5 50	5 30			1 60	1 10	
	Jun 1				4 85	4 85	5 00	5 00		2 00	1 85	
	Jun 9				4 75	4 70	4 80	5 00		1 75	1 00	
	Jun 15				4 75		4 50	5 00		2 00		
Jun 22				4 50		4 40	4 75		1 75	1 00		
Jun 29		6 00		4 40		4 00	4 00	0 60	1 75	0 80		
Jul 6												
Jul 14		6 00	4 30		4 00	4 60	4 00	0 60	1 75	0 80		

Source: MNS/ATC Geneva

Table 2 Baltimore Wholesale Market Prices for Fresh Ginger 1993 by source

(US\$/ PER 30 LB CARTON)

	Brazil	Costa Rica	Fiji	Hawaii	Indonesia
Jan	35 50		31 50		
	32 00		30 00		
	31 00	25 00	30 00		
	29 50		27 50		
Feb	30 00		27 50	35 00	
			26 50		
			28 00	32 00	
Mar	24 50		24 00		
			24 00	30 50	
			23 50	30 50	
		19 00	23 00	25 50	
Apr			19 50	25 50	
			30 50	33 00	
				33 00	33 00
				32 50	28 00
May				36 50	19 50
				36 00	31 50
				41 00	31 50
				41 00	33 50
Jun		19 50		42 00	
		19 50		42 00	
		19 50		43 50	
		19 50		42 00	
Jul				41 00	24 00
				41 50	24 00
				41 50	24 00
				42 00	
Aug		25 50	38 90	42 00	
	36 50	26 00	36 50	41 00	
	37 00	26 00		40 00	
				33 00	
Sep	30 00			33 00	
	30 00			33 00	
	29 00			32 00	
	29 00	26 00			
Oct	29 00	26 00			
	27 50	25 50			
	29 00	28 50			
	27 00				
Nov	30 00				
	30 50				
	30 50				
	28 50				
Dec	29 00				
	29 00				
	29 00			32 50	

Source: USDA, MNS

LYCHEE

UNITED STATES

Lychees are grown in Florida, which is the main source of domestic supply during the summer months. Mexico provides supplemental amounts in the summer and, along with Israel, also supplies product during the winter. Demand far outweighs current supply, and importers are seeking new sources. Floridian production may increase to better meet demand as replacements to trees damaged during Hurricane Andrew begin producing fruit. Additionally, Taiwan has recently been granted phytosanitary approval by APHIS to export fresh lychees to the U.S. market.

Primary research conducted in 1994 indicates a wide price differential, with specialty wholesalers in Los Angeles reporting Mexican product selling for as much as US\$4.50/lb during the summer season, but high volume wholesalers in Miami (50-70 thousand pounds per week of Floridian and Mexican product) reporting prices of US\$1.00 - \$1.20/lb. New York wholesalers report selling product at between US\$2.00-US\$3.00/lb during summer months (from Mexico and Florida), and paying as much as US\$5.00/kg landed price in the winter for air-transported Israeli product.

EUROPE

Lychees are the most popular imported Asian specialty fruit in the EU. Total 1993 extra-EU imports were recorded at 11.8 thousand MTs (ECU 29.2 million), a 65% volume increase

over 1990.¹

French imports account for 70% of total EU import volume, with three-fourths of all extra-EU supply sourced from Madagascar which has doubled its imports to the EU since 1990. South Africa, which accounts for an additional 20% of total volume, has also increased its market share substantially since 1990. South Africa and Madagascar supply during the major import season (December to March). Off-season product, which often sells at a higher price, is supplied by Thailand (May-July) and by Israel (July-September). Imports from Mauritius have declined in volume by 80% since 1990.

France imports nine times more fresh lychees than any other EU country, with 1990 imports at 9.0 thousand MTs (ECU 21.7 million).

Over 60% of France's annual imports arrived in December, with the rest supplied



mostly in January or February. Madagascar supplied 92% of French imports in 1993, with most of the remainder supplied by South Africa. French imports nearly doubled from 1990 to 1993. France also re-exports lychees mainly to the Benelux countries and Italy (1.0 thousand MTs, ECU 2.0 million in 1992).

¹ Fresh lychee imports are grouped in a category that includes fresh tamarind, sapodillo plums, cashew apples, and jackfruit. Seasonality statistics show that the majority of product is lychee however. Additionally, 1993 intra-EU trade statistics are unavailable so only extra-EU trade is reported.



The Netherlands is the second largest EU importer of lychees, and although the 1 2 thousand MTs (ECU 3 million) imported in 1993 from extra-EU sources is far lower than French imports, it represents a growth of 132% since 1990. South Africa supplied 842 MTs, followed by Madagascar (198 MTs) and Thailand (63 MTs). South Africa's and Madagascar's imports mostly arrive during the period December - April.

The United Kingdom imported 1 1 thousand MTs (ECU 2 8 million) from extra-EU sources in 1993, mainly from South Africa (761 MTs, ECU 1 8 million) between December and February. Thailand supplied the UK market with 140 MTs (ECU 479 thousand) from April through July. Other suppliers included Madagascar (106 MTs, ECU 329 thousand), Israel (25 MTs, ECU 99 thousand), and Mauritius (5 MTs, ECU 15 thousand). U K importers are interested in new sources of supply, particularly from India and Pakistan. Independent sources report supply from India entering the UK market in 1994.

Germany has historically sourced most of its lychee imports from France and the Netherlands. 1992 import statistics show total imports of 1 1 thousand MTs, of which 476 MTs were supplied by extra-EC sources. Total 1993 extra-EU imports were only 356 MTs (ECU 1 0 million), although up from 1990 levels (235 MTs, ECU 712 thousand). Most extra-EU product was sourced from either South Africa (203 MTs, ECU 535 thousand) or Madagascar (82 MTs, ECU 267 thousand), with much smaller amounts entering from Thailand and Israel.

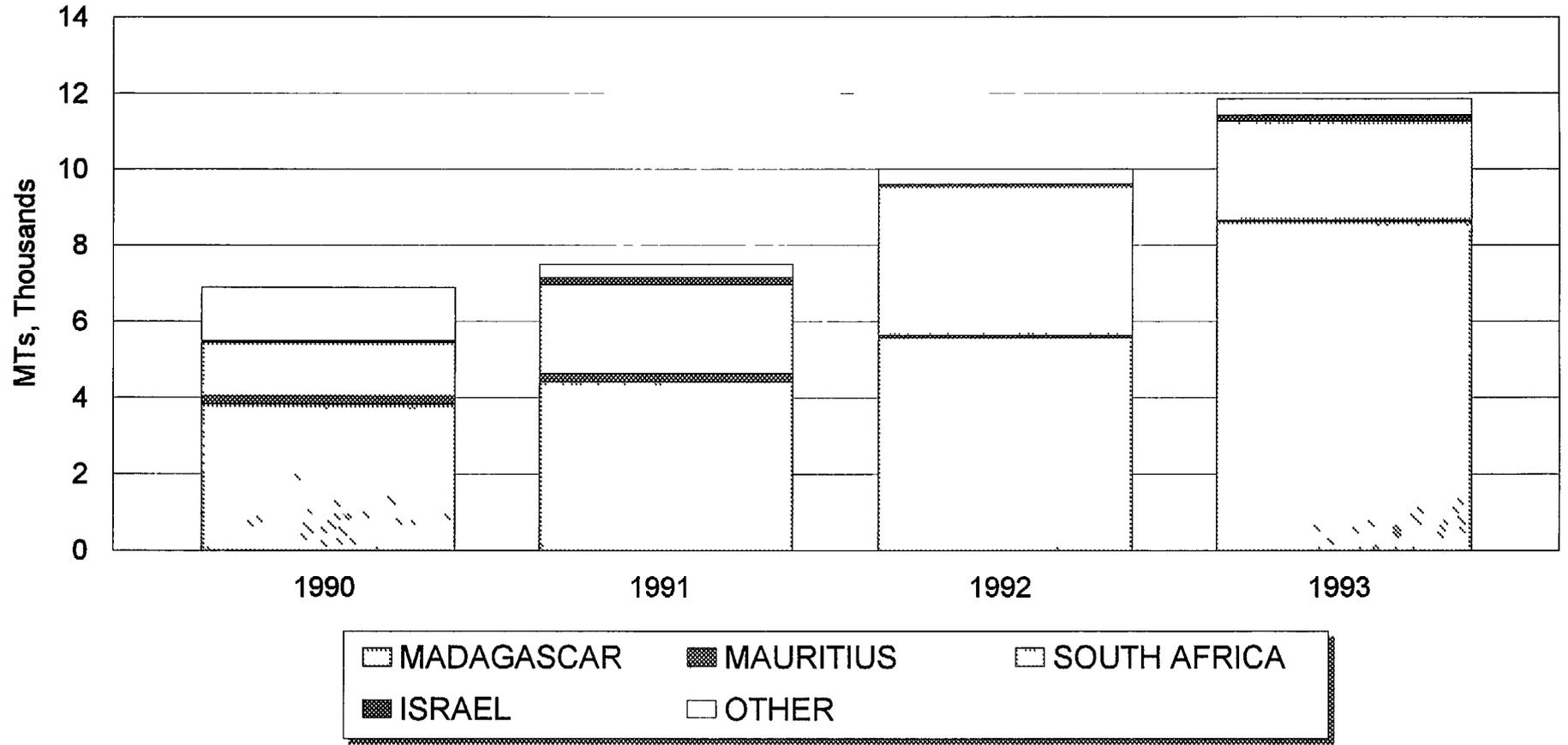
ASIA

Singapore is one of the few Asian markets which reports lychees in its import statistics. 1993 imports totalled 1 5 thousand MTs (US\$ 2 million CIF) with 98% entering in either June or July. Taiwan was Singapore's top supplier in 1993 with 878 MTs valued at US\$1 3 million. Thailand supplied 622 MTs (US\$641 thousand).

Taiwan's fresh lychee export statistics provide some trade indicators in lieu of other Asian countries' import statistics, as it is one of the largest suppliers in the region. Taiwan's 1993 exports totalled 7 0 thousand MTs (US\$7 6 million), a 12% increase over 1990. Japan imported 57% of total Taiwanese export value in 1993 (US\$4 4 million), but only 18% of volume (1 2 MTs). Other export markets for Taiwan included Canada (1 2 thousand MTs, US\$1 2 million), Hong Kong (1 9 thousand MTs, US\$678 thousand), the Philippines (1 1 thousand MTs, US\$552 thousand), and Singapore (990 MTs, US\$536 thousand).

Figure 1: EU Imports of Lychees

Extra-EU, 1990 - 1993



MADAGASCAR MAURITIUS SOUTH AFRICA
ISRAEL OTHER

Source Eurostat

Note Includes tamarind, cashew apple, sapodillo, and jackfruit

Table 1 European Importer Selling Prices for Fresh Lychees

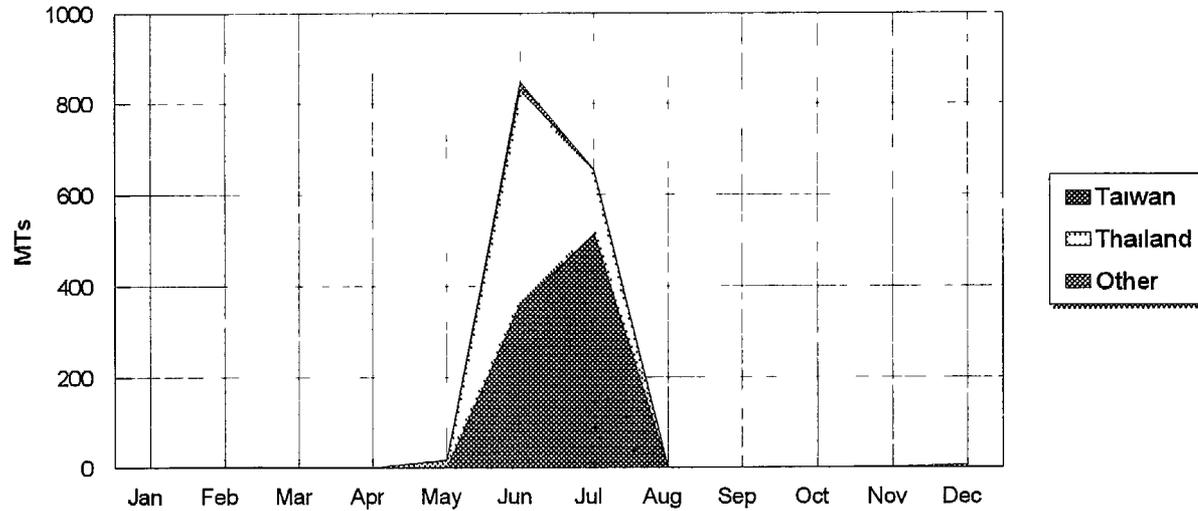
Importer	France (FF/kg)							Germany (DM/kg)							Holland (Hfl/kg)				UK (£/kg)							
	Australia	China	Israel	Mad	Reunion	South Afr	Thailand	Australia	China	Israel	Mad	Mauritius	South Afr	Thal	Israel	Mad	South Afr	Thal	China	Israel	Mad	South Afr	Taiwan	Thal	Zambia	
1993	Jul 28			90 00			80 00			12 25					13 00					5 00				5 50		
	Aug 4			38 00						11 50					12 25								3 75		5 50	
	Aug 11			37 00						11 00					12 25									4 50	3 75	
	Aug 19			38 00						11 00					12 25										4 50	
	Aug 26			38 00						11 00					13 50										3 75	
	Sep 2		23 00	43 00						11 75					11 75					4 50	4 50					4 50
	Sep 9		24 00	40 00				38 00			14 00				14 50					4 00	5 00		4 50			4 50
	Sep 16			41 00											15 00											
	Sep 23										4 25															
	Sep 30																									
Oct 7																										
Oct 14																										
Oct 21																										
Oct 28																										
Nov 4																										
Nov 11																										
Nov 18																										
Nov 25	67 00							17 60												4 75						
Dec 2				35 50							10 50	10 50	10 00				10 25								3 50	
Dec 9																										
Dec 16																										
Dec 23																										
Dec 30																										
1994	Jan 6														3 80	4 00					1 75	2 00				
	Jan 13				7 00	21 00					2 50		2 5		3 60	3 75					1 50					
	Jan 20				6 50	20 00					2 50		2 50		4 00	3 75					1 60					
	Jan 27				9 00		11 00				3 25				4 50	4 00					1 50					
	Feb 3				10 00		12 50				3 75				5 50	5 50					1 60	1 70				
	Feb 10				17 00		19 00								5 50	5 50					1 50					
	Feb 17				19 00										7 00	7 00										
	Feb 24																									
	Mar 3				16 00										6 75	5 00					2 60	2 40	2 25			
	Mar 10				17 00										7 25	7 25						2 50				
	Mar 17																					4 00				
	Mar 23																									
	Mar 31						27 00																			
	Apr 7																									
	Apr 14																									
	Apr 21																									
	Apr 28							62 50																		
	May 5																									
	May 13																									
	May 19																									
May 25																										
Jun 1																										
Jun 9																										
Jun 15																										
Jun 22																										
Jun 29																										
Jul 6																										
Jul 14																										
Jul 21																										
Jul 28			48 00							13 00																
										13 00																
										11 75					13 75						5 50					

Source ITC/MNS Geneva

Note All prices in importer country currency, per kilogram

Figure 2 Singapore Lychee Imports by Month

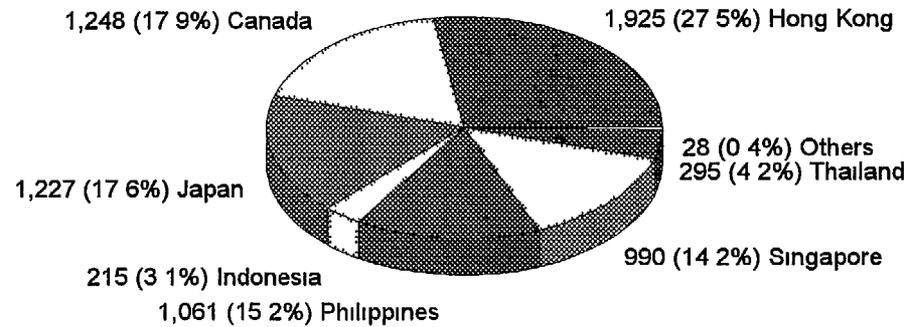
Metric Tons 1993



Source: Singapore External Trade Statistics

Figure 3 1993 Taiwanese Exports of Fresh Lychee

MTs to Destination Countries



Source: Customs Dept Govt of Taiwan

MANGOES

UNITED STATES

The U S import market for mangoes has grown by 112 percent in terms of volume from 1989 to 1993. Mexico's market share has consistently been about 85 percent during this period, while the remaining 15 percent is shared by 16 exporting countries (see Figure 1). Haiti supplied 6 percent of the market in 1993, followed by Brazil at 3 percent, and Peru at 2 percent. Haiti's exports to the U S have dropped over the last several years due to political problems, but are expected to rise again in the future.

The import season for Mexican product generally extends from April through August, with lesser amounts entering in March and September. Peruvian and Brazilian product arrive during the late winter and early spring. Prices tend to be highest at the beginning and the end of the import season. The Miami Produce Center, a major import hub for mangoes from South America, reported a price high of \$10.50 per 10-count box of Mexican mangoes in early April 1993, dropping to a low of \$5.50 by the end of May. The Chicago Wholesale Market reported that 1993 prices fluctuated between \$13.00 in early March for a 12-count box of Mexican mangoes, to \$5.00 per box in mid-June.

EUROPE

1993 European Union mango imports from non-EU nations increased by 60 percent since 1988, from 27,354 MTs to 43,868 MTs. The Netherlands imported close to 40 percent of total EU volume in 1993, followed by

the United Kingdom (24%), and France (21%). Substantial volumes were then re-exported to other EU trading partners, with the Netherlands re-exporting 38 percent of their 1992 mango imports, and France 14 percent. The UK only re-exported 4 percent of total imports in 1992.

Brazil (23%), the U S (11%), and South Africa (8%) were the top exporters to the EU in 1993. Israel, which supplies 7 percent of Europe's imported mangoes, has shown the largest growth in volume, from 1988 to 1993. Israel's volume increased from 440 to over 2500 MTs per year, an average of almost 100 percent annually (see Figure 2). Other countries with large increases in mango exports to Europe from 1988 to 1993 include Brazil (160%), South Africa (188%), and Pakistan (80%). Market share has also changed for the top suppliers during this period, with Brazil gaining an additional 9%, Israel 5%, and South Africa 4%, of the European market. Venezuela lost 5% of the market, and the US and Mexico both lost 3% over the last six years.





market during this time period. Brazil supplied 90% of the EU market during November and December.

France imported 49% more mangoes from non-EU nations in 1993 than in 1988. The Ivory Coast is France's major supplier, shipping 2,024 MTs (21% of total import volumes). Israel is second in terms of volume, supplying 19%, followed by Mexico with 11%. Several countries have dramatically increased their exports to France during the period 1988-1993. Israel's exports have increased 1,671%, South Africa's increased 176%, and the Ivory Coast's increased 97%. Exports from the United States have declined 83% during the same period.

Belgium's imports of mangoes from non-EU countries have not grown appreciably in the last six years. South Africa is the largest supplier with 27% of the market, followed by the Ivory Coast with 12%.

England's mango import market has grown from 9,970 MTs (1988) to 10,623 (1993). Pakistan is the UK's largest supplier with 2,258 MT in 1993, followed by Brazil with 1,273 MTs and the Ivory Coast with 1,263 MTs. Between 1988 and 1993, Brazil has doubled its exports to the UK. (See Table 1 for UK importer prices for mangoes.)

Holland imported 17,367 MTs of mangoes in 1993, up considerably from the 5,240 MTs imported in 1988. Brazil supplies 40 percent of Holland's market, followed by the U.S. (22 percent). Much of Holland's exports are re-exported (38 percent in 1992, the last year for which re-export figures are available).

ASIA

Japan's mango imports have increased 53 percent in volume terms from 1989 to 1993, from 6,000 MTs to over 9,000 MTs (CIF US\$21,439,000). The Philippines dominated the 1993 market, exporting 8,000 MTs to Japan for 87 percent of the market, increasing their share 10 percent from 1989 levels. Mexico follows the Philippines with a 12% market share. All other individual exporters have less than one percent of the market.

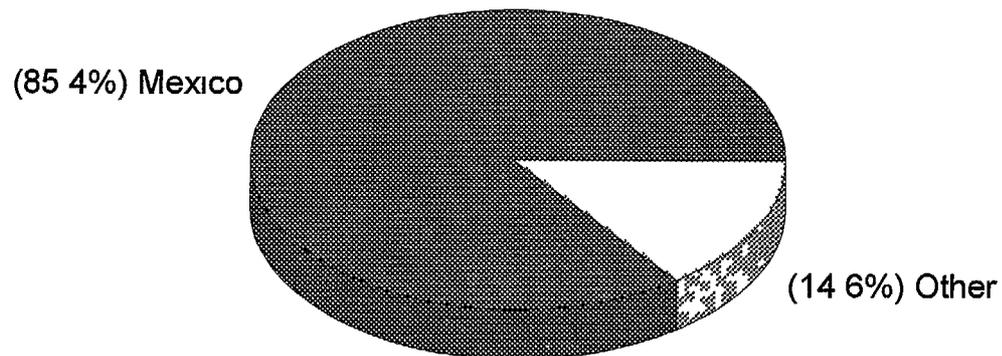
March through May was the peak season for 1993 Japanese imports, with 57 percent of total supply brought in during these three months (see Figure 3). During November-January, only 6 percent of annual volume was imported. The average unit value for 1993 was ¥595.15 per kilogram.

Hong Kong imported 27,895 MTs of mangoes, mangosteens, guavas, and avocados with a CIF value of US\$273.3 million in 1993. The Philippines are Hong Kong's major supplier, providing over 70 percent of imports (see Figure 4). Thailand supplies 13 percent of the market, leaving the remaining 16 percent to be supplied by 13 other countries.

Singapore imported 10,300 MTs of mangoes, mangosteens, guavas and avocados in 1993, for a value of CIF US\$9.0 million. Malaysia, whose exports to Singapore peak in August, was the largest supplier, providing 5,126 MTs. Thailand, whose exports peaked in May, supplied 2,787 MTs, making it Singapore's second largest supplier.

Figure 1: US Imports of Fresh Mangoes

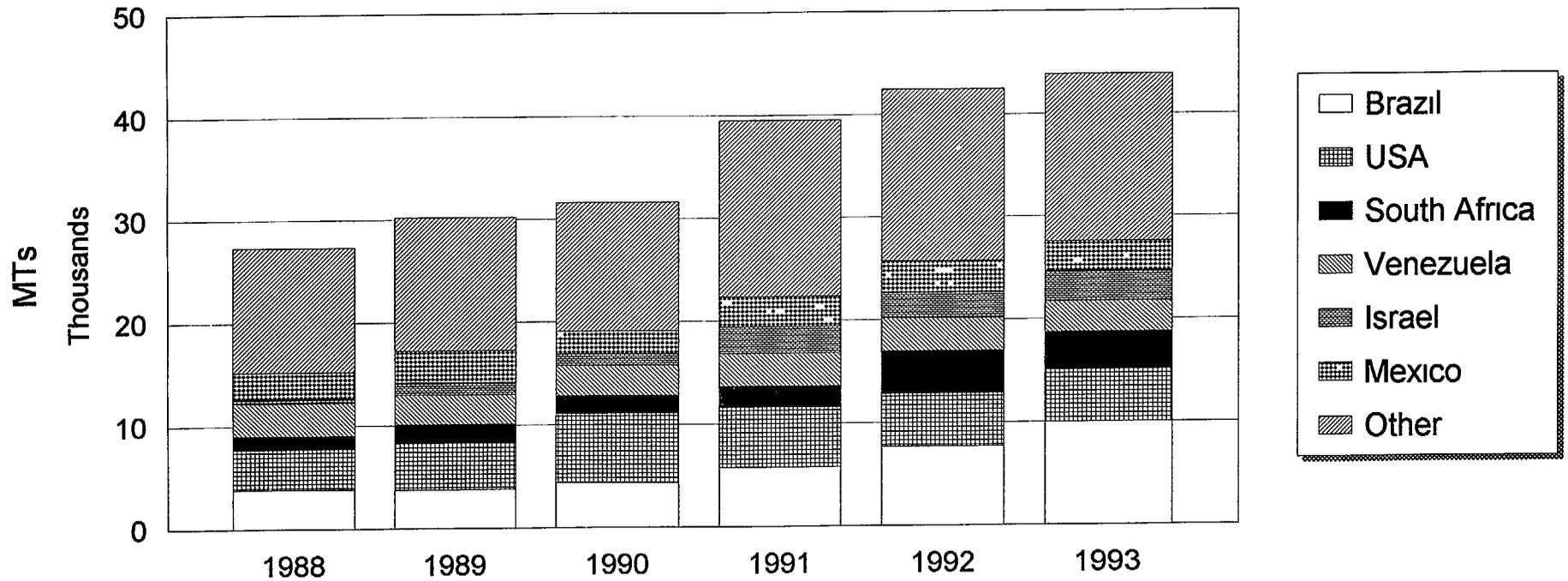
1993, By Volume



Source NTDB

Figure 2. EU Imports of Fresh or Dried Mangoes

1988 - 1993, Extra EU



Source Eurostat

Note Includes Guavas and Mangosteens

TABLE 1 UK IMPORTER SELLING PRICES FOR FRESH MANGOES

PRICES IN POUNDS STERLING PER KILO

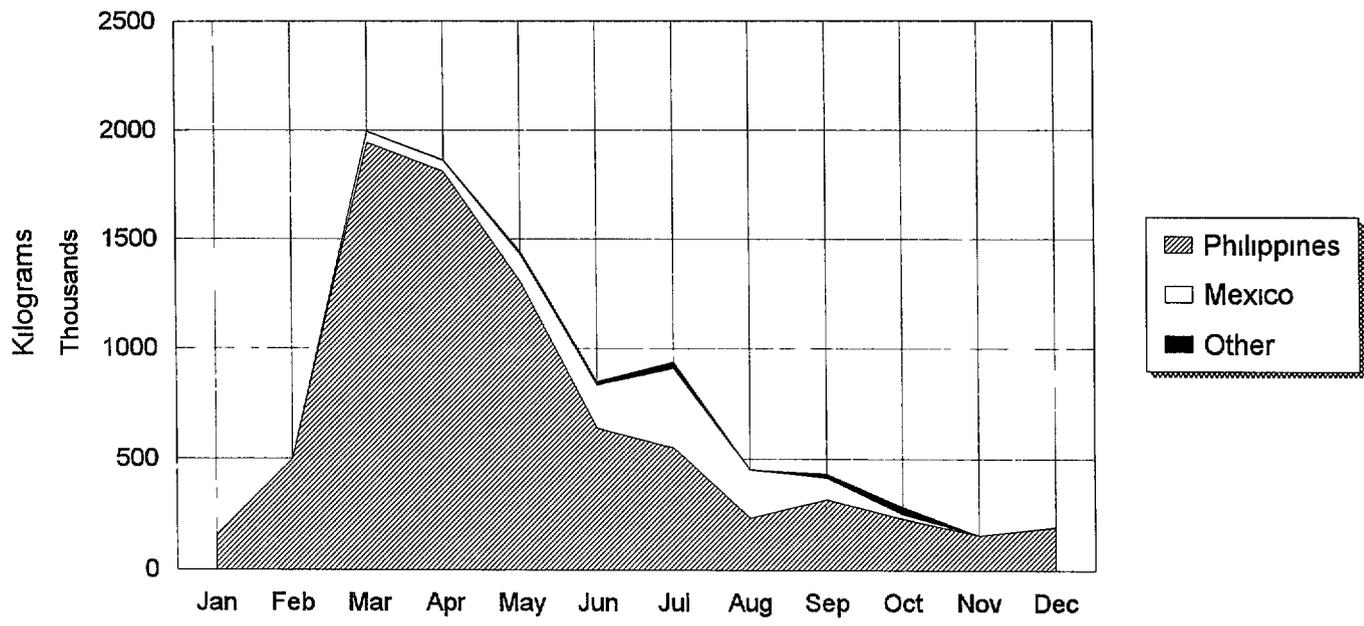
	Exporter	Brazil atk	Brazil sea	Guat sea	Honduras	India	Israel	Jamaica sea	Kenya ngo	Mexico alr	Mexico sea	Pakistan	South Afr sea	Venezuela air
1993	Jul 28			1 90				1 25					1 40	
	Aug 4									2 25	1 85			
	Aug 11						1 75							
	Aug 19													
	Aug 26						1 40	1 30				1 65		
	Sep 2						1 75							
	Sep 9						1 65							
	Sep 16						1 50							
	Sep 23	2 50					1 50							
	Sep 30	2 50					1 25				1 50			
	Oct 7	2 25					1 45							
	Oct 14	1 90								2 50	1 50			
Oct 21	1 75					1 25			2 50					
Oct 28	2 50													
Nov 4			1 50											
Nov 11														
Nov 18														
Nov 25			1 00											
Dec 2	1 60	1 00												
Dec 9		1 00												
Dec 16		1 00												
Dec 23		1 10												
Dec 30														
1994	Jan 6													
	Jan 13													
	Jan 20	1 75							2 00					
	Jan 27	1 60							1 75					
	Feb 3	1 60												
	Feb 10	1 50							1 50				1 50	
	Feb 17		1 50								1 30		1 20	
	Feb 24													
	Mar 3													
	Mar 10	1 40								1 60			1 20	
	Mar 17												1 25	
	Mar 23													
	Mar 31								1 50					2 25
	Apr 7													
	Apr 14													2 00
	Apr 21	1 75		1 50						1 35				1 50
	Apr 28	1 75					2 00						1 30	2 25
	May 5													
May 13	1 75				1 80								2 25	
May 19					1 50					1 75			1 75	
May 25					1 50					1 50			2 00	
Jun 1		1 50											2 25	
Jun 9		1 60	1 40	1 50	1 40		1 10			1 25			2 00	
Jun 15				1 50	1 65			1 00		1 25			2 00	
Jun 22			1 60		1 00						1 50			
Jun 29														
Jul 6					1 25			1 00						1 80
Jul 14					1 25			1 00						1 80
Jul 21														
Jul 28														
Aug 3							2 00			1 50				
Aug 10										1 55	1 25			
Aug 17							1 70			1 75				1 50
Aug 24							1 10			1 25				

ABBR

ame=ameli
 atk=tommy
 had=haden
 irw=irwin
 kei=keitt
 ken=kent
 ngo=n gow
 sen=sensat

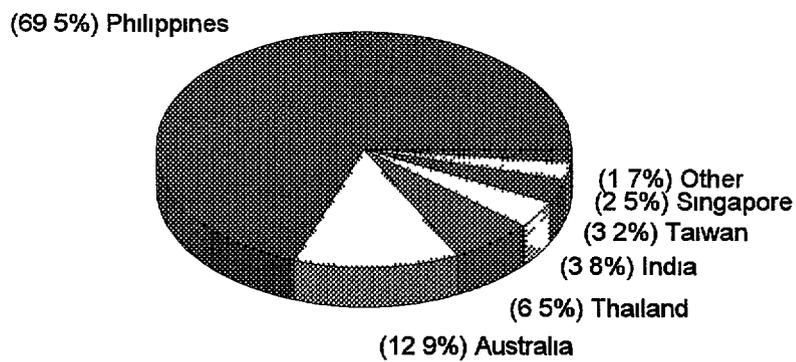
Source ITC/MNS Geneva

Figure 3 Japanese Mango Imports
Kilograms, 1993



Source: Japan Tariff Association

Figure 4 Hong Kong Mango Imports
1993, By Volume



Source: Census and Statistics Dept, Hong Kong

ORCHIDS

UNITED STATES

The United States import market for orchids is divided into "dendrobium" and "non-dendrobium" orchids for reporting purposes. In terms of volume, the import market for dendrobium has grown much more rapidly, gaining 54 percent over 1990 levels as opposed to little growth for non-dendrobiums. In 1993, Thailand supplied 98 percent of the 14 million-stem (\$4.3 million CIF) US import market for dendrobiums, and it has consistently supplied the same percentage for the past four years (see Figure 1). Chicago wholesale prices remained stable in 1992, with Hawaiian dendrobiums selling at \$1.75/stem and Thai product for between \$0.83 and \$1.00/stem (see Table 1). Imports are highest for the periods directly preceding Valentine's Day, Mothers Day, and Easter.

The non-dendrobium import market (\$2.5 million CIF or 6.2 million stems in 1993), has remained relatively stable for the past four years. In 1991, imports dropped significantly, but rebounded in 1992. Thailand is also the top supplier of non-dendrobiums, accounting for 59 percent of the non-dendrobium stems imported into the US. Other large suppliers include the Netherlands (28 percent of the volume) and New Zealand (7 percent). See Figure 2.

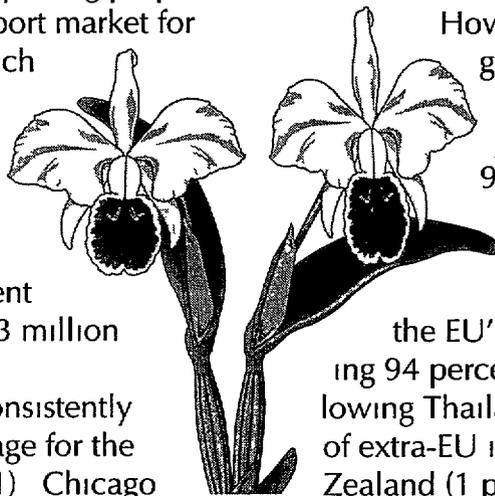
EUROPE

Extra-EU orchid imports (those from non-EU suppliers) have increased 72 percent in volume over the period 1988-1993.

However, the majority of this growth occurred between 1988 and 1989, when imports jumped from 59.9 million to 97.0 million stems. This growth can be directly attributed to a major boost in exports from Thailand. Thailand was the EU's top supplier in 1993, providing 94 percent of extra-EU imports. Following Thailand were Singapore (3 percent of extra-EU import volume) and New Zealand (1 percent)*. 1992 figures, which include imports from other EU countries, reveal that the Netherlands supplied 26 percent of total EU import demand. For the same year, Thailand's import share was 69 percent, followed by Singapore (3 percent) and New Zealand (1 percent). In the past 5 years, Thai exports to the EU have grown 97 percent, while Dutch exports have dropped by 15 percent. Italy, the Netherlands and Germany are by far the largest EU importers (with a combined 92 percent of the total EU import market).

Italy was the EU's largest importer of non-EU grown orchids in 1993, importing 63 percent

*Due to technical reporting difficulties, 1993 intra-EC trade data is unavailable.



or 64.6 million stems, (ECU 14.1 million) Thailand was Italy's largest supplier, with 62.9 million stems (ECU 13.0 million), followed by Singapore with 749 thousand stems (ECU 460 thousand). Both Singapore and Thailand supply orchids year-round, with highest volume during the first three months of the year and October (see Figure 3). New Zealand and South Africa supplied 564 thousand and 127 thousand stems, respectively, mostly entering during the period June-July.

The Netherlands is the second-largest importer of extra-EU orchids, importing 16.7 million stems (ECU 4.0 million) in 1993. Thailand supplied 14.2 million stems (ECU 2.9 million) making it, by far, the Netherlands largest supplier in 1993. Singapore (1.8 million stems), Germany (609 thousand stems in 1992), and New Zealand (226.7 thousand stems) are also major suppliers. Imports are highest during the period October - February (see Figure 4). Thailand and Singapore supply year-round.

Germany imported 13.0 million stems (ECU 4.2 million) of non-EU orchids in 1993. In 1992, Germany imported the majority (76 percent) of its orchids from the Netherlands. Almost all extra-EU volume is from Thailand, which supplied 11.7 million stems in 1993, up from 11.3 million stems in 1992. Singapore exported 996 thousand stems (ECU 738.0 million) to Germany in 1993. Imports were highest during the months of February, May and December (see Figure 5).

ASIA

Japan import demand takes the production of an estimated 600 hectares of orchid farms in Thailand, Singapore, Malaysia and Indonesia. Japan imports 50 percent of Thai and Singaporean spray orchid production. 1992 Thai trade statistics show exports to Japan at 4.3 million kgs of fresh orchids (FOB Baht 361.1 million) and an additional 442 thousand kgs (42.0 million Baht) of orchid plants. In 1993, the Netherlands exported 596 thousand stems (FOB ECU 547 thousand) to Japan. Australia and New Zealand are also major suppliers to Japan. The Ota Floriculture Auction and the Flower Auction Japan report average weekly prices for the period May-September 1994 ranging from ¥300 - ¥1,097/stem for Phalaenopsis orchids supplied by New Zealand and Australia, ¥36 - ¥52/stem for Oncidium supplied by Thailand and Singapore, ¥68 - ¥90/stem for Anna supplied by Thailand and Singapore, and ¥651 - ¥928/stem for Cymbidium supplied by New Zealand and the Netherlands.

Hong Kong imported 23.0 thousand kgs (FOB 1.2 million Baht) of orchid plants and 558.5 thousand kgs (FOB Baht 14.8 million Baht) of fresh cut orchids from Thailand in 1992. Hong Kong took 1 percent of Thailand's fresh cut orchid exports and 2 percent of its orchid plant exports.

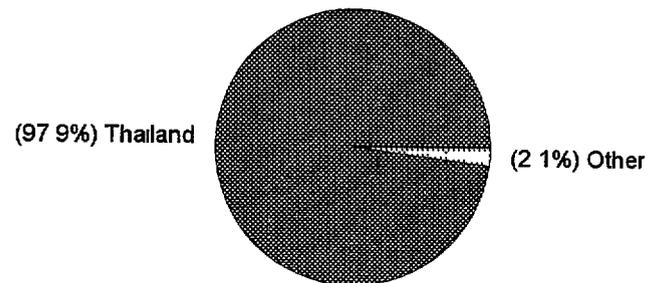


**Table 1 Chicago Wholesale Market
Prices (\$USD per stem), by week, 1992**

	Orchid				
	Cattleyas	Cymbidiums	Dendrobiums		
			Large White	California	Hawaii
Jan	6	4 25	2 75	1 75	0 83
	13	4 25	2 75	1 75	0 83
	21	4 25	2 75	1 75	0 83
	27	4 25	2 75	1 75	0 83
Feb	3	4 25	2 75	1 75	0 83
	10	4 25	2 75	1 75	0 83
	18	4 25	2 75	1 75	0 83
	24	4 25	2 75	1 75	0 83
March	2	4 25	2 75	1 75	0 83
	9	4 25	2 75	1 75	0 83
	16	4 25	2 75	1 75	0 83
	23	4 25	2 75	1 75	0 92
	30	4 25	2 75	1 75	0 92
April	6	4 25	2 75	1 75	0 92
	13	4 25	2 75	1 75	0 92
	20	4 62	2 50	1 75	0 92
	27	4 62	2 50	1 75	0 92
May	4	4 62	2 50	1 75	0 92
	11	4 62	2 50	1 75	0 92
	18	4 62	2 50	1 75	0 92
	26	4 62	2 50	1 75	0 92
June	1	4 62	2 50	1 75	0 92
	8	4 62	2 50	1 75	0 92
	15	4 62	2 50	1 75	0 92
	22	4 62	2 50	1 75	0 92
	29	4 62	2 50	1 75	0 92
July	6	4 62	2 50	1 75	0 92
	13	4 62	2 50	1 75	0 92
	20	4 62	2 50	1 75	0 92
	27	4 62	2 50	1 75	0 92
Aug	3	4 62	2 50	1 75	0 92
	10	4 62	2 50	1 75	0 92
	17	4 62	2 50	1 75	0 92
	24	4 62	2 50	1 75	0 92
	31	4 62	2 50	1 75	0 92
Sept	8	4 62	2 50	1 75	0 92
	14	4 62	2 50	1 75	0 92
	21	4 62	2 50	1 75	0 92
	28	4 62	2 50	1 75	0 92
Oct	5	4 62	2 50	1 75	0 92
	13	4 62	2 50	1 75	0 92
	19	4 62	2 50	1 75	0 92
	26	4 62	2 50	1 75	0 92
Nov	2	4 75	2 50	1 75	0 92
	9	4 75	2 25	1 75	0 92
	16	4 75	2 25	1 75	0 92
	23	4 75	2 25	1 75	0 92
	30	4 75	2 25	1 75	0 92
Dec	7	4 75	2 25	1 75	0 92
	14	4 75	2 25	1 75	0 92
	21	4 75	2 25	1 75	0 92
	28	4 75	2 25	1 75	0 92

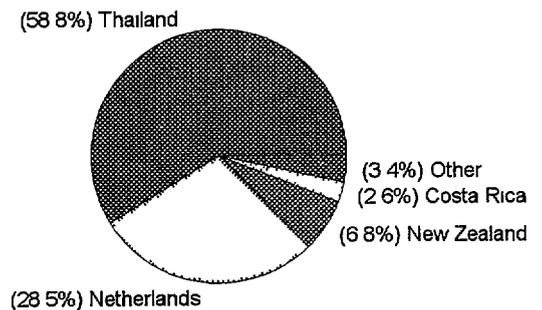
Source USDA/MNS Chicago

**Figure 1 Dendrobium Orchids
US Imports 1993, By Volume**



Source NTDB

**Figure 2 Non-Dendrobium Orchids
US Imports 1993 By Volume**



Source NTDB

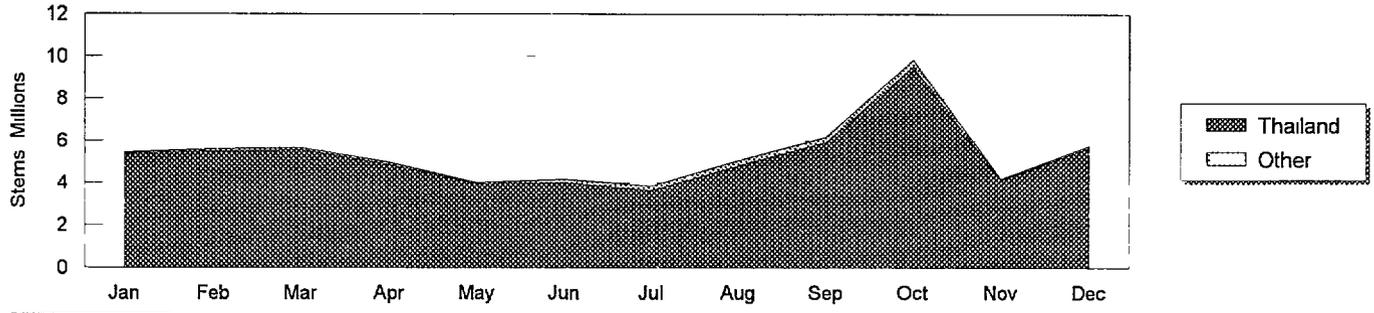
TABLE 2 EU IMPORTER SELLING PRICES FOR ORCHIDS, US\$/STEM

Year	Flower Variety	Orchids											Mixed bouquet-3sm/med greens																		
		Mme P. msadour-med				Sonia-Igo							Taiwan				Thailand														
Importer	Jamaica	Singapore	Thailand	Switzerland	Germany	Norway	Sweden	Taiwan	Thailand	B. Igl. m.	Switzerland	D. utschian	Spain	France	Italy	Norway	Sweden	Taiwan	Thailand	Switzerland	Germany	France	U.K.	Italy	Norway	Sweden	Singapore				
	Deutscher	Belgi	B. Igl. m.					Belgium	Austria									B. Igl. m.	Austria	Switzerland	Germany	France				Switzerland	U.K.				
1983	Aug 19			\$0.37							\$0.57			\$0.85	\$0.44		\$0.53										\$0.82	\$1.22			
	Aug 26			\$0.37							\$0.57			\$0.85	\$0.44		\$0.53										\$0.82	\$1.22			
	Sep 2			\$0.28		\$0.31					\$0.49			\$0.56	\$0.41												\$0.79	\$1.22			
	Sep 9										\$0.49	\$0.41	\$0.50	\$0.82	\$0.38	\$0.41							\$0.62	\$0.65	\$0.94	\$0.88	\$0.63	\$0.79	\$1.19		
	Sep 16			\$0.28	\$0.29	\$0.27					\$0.45	\$0.38	\$0.50	\$0.73	\$0.38	\$0.41							\$0.62	\$0.54	\$0.83	\$0.90	\$0.63	\$0.77	\$1.22		
	S p 23			\$0.28	\$0.29	\$0.27					\$0.49	\$0.38	\$0.50	\$0.73	\$0.38	\$0.41							\$0.62	\$0.54	\$0.83	\$0.88	\$0.63	\$0.77	\$1.30		
	S p 30			\$0.28	\$0.29	\$0.27					\$0.49	\$0.38	\$0.48	\$0.73	\$0.38	\$0.41	\$0.88						\$0.62	\$0.54	\$0.83	\$0.88	\$0.63	\$0.71	\$1.30		
	Oct 7	\$2.17		\$0.28	\$0.31	\$0.27					\$0.49	\$0.38	\$0.48	\$0.74	\$0.38	\$0.41	\$0.88						\$0.62	\$0.54	\$0.83	\$0.88	\$0.63	\$0.71	\$1.30		
	Oct 14			\$0.35	\$0.34	\$0.28					\$0.59	\$0.42	\$0.48	\$0.74	\$0.44	\$0.42	\$0.82						\$0.76	\$0.57	\$0.85	\$0.97	\$0.75	\$0.79	\$1.30		
	Oct 21			\$0.35	\$0.34	\$0.28					\$0.59	\$0.42	\$0.48	\$0.74	\$0.44	\$0.42	\$0.82						\$0.76	\$0.57	\$0.85	\$0.97	\$0.75	\$0.79	\$1.30		
	Oct 28			\$0.36	\$0.33	\$0.27					\$0.50	\$0.50	\$0.48	\$0.73	\$0.43	\$0.41	\$0.80						\$0.66	\$0.63	\$0.65	\$0.83	\$0.96	\$0.74	\$0.77	\$1.29	
	Nov 4										\$0.60	\$0.50	\$0.51	\$0.73	\$0.43	\$0.41	\$0.80	\$0.39	\$0.68	\$0.85	\$0.66	\$0.83	\$0.96	\$0.73			\$0.77	\$1.29	\$1.28		
	Nov 11			\$0.36	\$0.36	\$0.27			\$0.42	\$0.43	\$0.60	\$0.51	\$0.50	\$0.73	\$0.42	\$0.44	\$0.79	\$0.39	\$0.68	\$0.84	\$0.64	\$0.83	\$0.98	\$0.72	\$0.88	\$0.76	\$1.28	\$1.28			
	Nov 18			\$0.37	\$0.31	\$0.41			\$0.39	\$0.43	\$0.60	\$0.51	\$0.50	\$0.73	\$0.42	\$0.44	\$0.79					\$0.68	\$0.84	\$0.64	\$0.83	\$0.98	\$0.72	\$0.88	\$0.76	\$1.28	
	Nov 25			\$0.37	\$0.36	\$0.40				\$0.43	\$0.60	\$0.47	\$0.50	\$0.73	\$0.41	\$0.43	\$0.77					\$0.67	\$0.84	\$0.65	\$0.83	\$0.81	\$0.71	\$0.87	\$0.74	\$1.29	
	Dec 2		\$0.20	\$0.38	\$0.32	\$0.41				\$0.46	\$0.66	\$0.52	\$0.57	\$0.73	\$0.42	\$0.43	\$0.78					\$0.79	\$0.88	\$0.68	\$0.84	\$0.97	\$0.72	\$0.88	\$0.75	\$1.31	
	Dec 9		\$0.20	\$0.38	\$0.32	\$0.41				\$0.46	\$0.66	\$0.52	\$0.57	\$0.73	\$0.42	\$0.43	\$0.78					\$0.79	\$0.88	\$0.68	\$0.84	\$0.97	\$0.72	\$0.88	\$0.75	\$1.31	
	Dec 16			\$0.40	\$0.35	\$0.44				\$0.46	\$0.71	\$0.54	\$0.57	\$0.73	\$0.47	\$0.77							\$0.79	\$0.90	\$0.74	\$0.84	\$0.97	\$0.83	\$0.74	\$1.31	
	Dec 23			\$0.41	\$0.37	\$0.47				\$0.46	\$0.72	\$0.59	\$0.59	\$0.74	\$0.46	\$0.50	\$0.78						\$0.79	\$0.91	\$0.74	\$0.92	\$0.98	\$0.84	\$0.75	\$1.33	
	Dec 30																												\$1.34		
1984	Jan 6			\$0.39	\$0.33	\$0.47				\$0.45	\$0.68	\$0.50	\$0.54	\$0.73	\$0.44	\$0.49	\$0.80					\$0.78	\$0.89	\$0.71	\$0.90	\$0.97	\$0.79	\$0.77	\$1.30	\$1.34	
	Jan 13			\$0.39	\$0.33	\$0.47				\$0.45	\$0.68	\$0.50	\$0.55	\$0.72	\$0.44	\$0.49	\$0.80					\$0.77	\$0.90	\$0.70	\$0.90	\$0.97	\$0.78	\$0.77	\$1.31	\$1.35	
	Jan 20			\$0.39	\$0.33	\$0.47				\$0.45	\$0.68	\$0.50	\$0.55	\$0.72	\$0.44	\$0.49	\$0.81					\$0.77	\$0.90	\$0.70	\$0.90	\$0.96	\$0.79	\$0.78	\$1.30	\$1.36	
	Jan 27			\$0.39	\$0.33	\$0.47				\$0.45	\$0.71	\$0.50	\$0.55	\$0.72	\$0.44	\$0.49	\$0.81					\$0.78	\$0.97	\$0.71	\$0.91	\$0.98	\$0.80	\$0.79	\$1.47	\$1.35	
	Feb 3			\$0.42						\$0.45	\$0.71	\$0.50	\$0.55	\$0.72	\$0.44	\$0.49	\$0.81					\$0.78	\$0.97	\$0.71	\$0.91	\$0.98	\$0.80	\$0.79	\$1.47	\$1.35	
	Feb 10			\$0.41	\$0.40	\$0.49				\$0.44	\$0.69	\$0.57	\$0.57	\$0.72	\$0.44	\$0.62	\$0.81					\$0.83	\$0.94	\$0.77	\$0.90	\$0.96	\$0.79	\$0.88	\$0.78	\$1.43	\$1.19
	Feb 17			\$0.28	\$0.28	\$0.31					\$0.48	\$0.41	\$0.50	\$0.82	\$0.38								\$0.62	\$0.70	\$0.94	\$0.99	\$0.63	\$0.87	\$0.82	\$1.47	\$1.33
	Feb 24			\$0.42	\$0.34	\$0.49				\$0.45	\$0.69	\$0.53	\$0.57	\$0.73	\$0.42	\$0.62	\$0.82					\$0.85	\$0.95	\$0.72	\$0.81	\$0.95	\$0.77	\$0.87	\$0.82	\$1.47	\$1.33
	Mar 3			\$0.43	\$0.35	\$0.49				\$0.46	\$0.69	\$0.54	\$0.57	\$0.74	\$0.48	\$0.53	\$0.81					\$0.86	\$0.96	\$0.73	\$0.83	\$0.97	\$0.83	\$0.88	\$0.82	\$1.48	\$1.34
	Mar 10			\$0.51	\$0.43	\$0.40	\$0.50			\$0.50	\$0.69	\$0.55	\$0.56	\$0.74	\$0.47	\$0.53	\$0.81					\$0.85	\$0.95	\$0.73	\$0.83	\$0.97	\$0.83	\$0.88	\$0.82	\$1.48	\$1.34
	Mar 17			\$0.43	\$0.43	\$0.37	\$0.50			\$0.40	\$0.69	\$0.57	\$0.58	\$0.75	\$0.48	\$0.53	\$0.82					\$0.86	\$0.96	\$0.75	\$0.86	\$0.97	\$0.90	\$0.83	\$1.48	\$1.34	
	Mar 23																												\$1.34		
	Mar 31			\$0.44						\$0.51	\$0.58	\$0.70	\$0.55	\$0.60	\$0.75	\$0.52	\$0.83					\$0.88	\$0.97	\$0.76	\$0.96	\$0.97	\$0.86	\$0.96	\$0.83	\$1.50	\$1.34
	Apr 7			\$0.43	\$0.32					\$0.53	\$0.69	\$0.51	\$0.60	\$0.74	\$0.52	\$0.82						\$0.84	\$0.96	\$0.79	\$1.04	\$0.95	\$0.86	\$0.83	\$1.49	\$1.32	
	Apr 14			0.44	0.38					0.52	0.72	0.52	0.65	0.73	0.52	0.82						0.83	0.95	0.67	1.02	0.86	0.85	0.84	0.83	1.47	1.33
	Apr 21			\$0.44	\$0.38					\$0.53	\$0.72	\$0.57	\$0.65	\$0.74	\$0.52	\$0.82						\$0.84	\$0.95	\$0.69	\$1.20	\$0.95	\$0.86	\$0.83	\$1.47	\$1.32	
	Apr 28			\$0.45	\$0.42					\$0.53	\$0.72	\$0.59	\$0.66	\$0.74	\$0.53	\$0.83						\$0.85	\$0.96	\$0.80	\$1.21	\$0.98	\$0.87	\$0.83	\$1.48	\$1.43	
	May 5			\$0.59	\$0.46	\$0.39				\$0.54	\$0.74	\$0.65	\$0.67	\$0.76	\$0.57	\$0.85						\$0.87	\$0.98	\$0.90	\$1.42	\$1.05	\$1.07	\$0.86	\$1.52	\$1.44	
	May 13			\$0.57	\$0.45					\$0.54	\$0.74	\$0.65	\$0.67	\$0.76	\$0.57	\$0.85						\$0.87	\$0.98	\$0.90	\$1.42	\$1.05	\$1.07	\$0.86	\$1.49	\$1.42	
	May 19			\$0.44	\$0.45					\$0.55	\$0.73	\$0.62	\$0.66	\$0.75	\$0.57	\$0.84						\$0.87	\$0.98	\$0.92	\$1.22	\$1.04	\$1.06	\$0.81	\$1.50	\$1.43	

Source ITCMINS Geneva

Figure 3 Italian Imports of Orchids

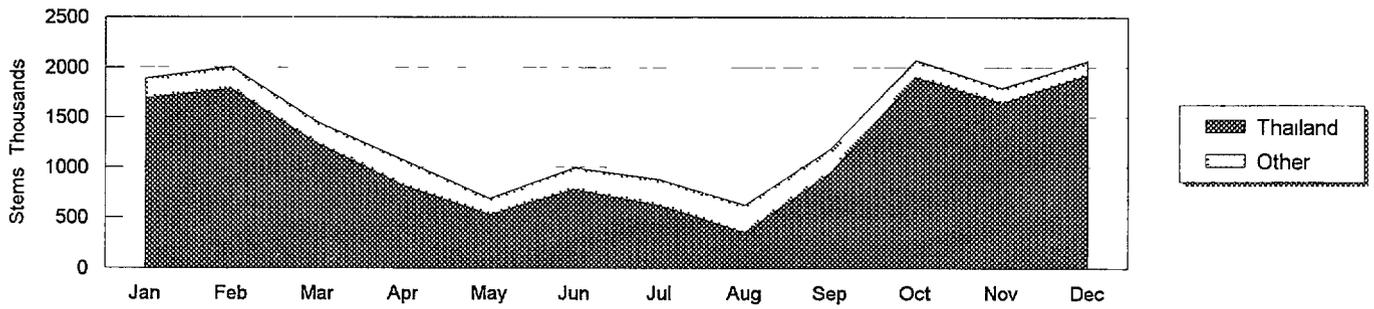
1993 Extra EU



Source Eurostat

Figure 4 Dutch Imports of Orchids

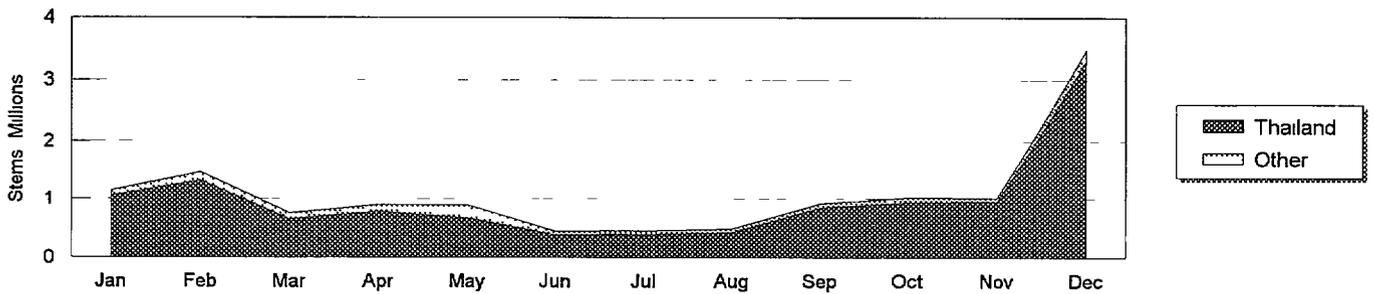
1993 Extra EU



Source Eurostat

Figure 5 German Imports of Orchids

1993 Extra EU



Source Eurostat

STRAWBERRIES

UNITED STATES

During the past decade in the United States, demand for fresh strawberries has doubled, domestic production has increased, and seasonal availability has expanded. Total 1993 fresh strawberry imports (14.2 thousand MTs, CIF US\$23.5 million) declined slightly in volume but increased in value from 1991 levels (14.3 thousand MTs, CIF US\$ 20.2 million). Import statistics for the first nine months of 1994 show a substantial increase in both volume and value (to 18.0 thousand MTs, CIF US\$31.3 million). Mexico was the largest foreign supplier of fresh strawberries in 1993 with 90% of total import volume, followed by Colombia (5%) and New Zealand (3%).

EUROPE

1993 extra-EU imports of fresh strawberries totaled 24.5 thousand MTs (ECU 31.0 million), an increase of 32% in volume and 62% in value since 1988. Poland, the world's second largest producer of strawberries (behind the United States), is the EU's major external supplier, accounting for 62% of 1993 extra-EU import volume. However, Polish supply, which mostly enters during the summer months when EU production is highest and prices are lowest, accounted for only 32% of extra-EU import value. Other significant external suppliers included Morocco (21% of total imported volume from non-EU suppliers), the United States (9%), Israel (3%), Mexico (2%), and Colombia (1%). Morocco exports to the EU mainly during the period February-May, with Israel, Mexico, and Colombia also supplying during the off-season. The United States supplies the market year-round.

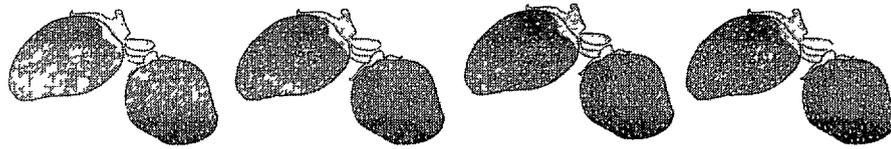
Although extra-EU supply is substantial, the vast majority of overall EU imports enters from Spain and other EU member countries. Total EU imports for 1992 were recorded at 209.4 thousand MTs (ECU 450.7 million) of which intra-EU trade accounted for 89% of volume and 94% of value. Spain accounted for 54% of total EU trade in fresh strawberries. Since 1988, intra-EU trade has increased 24% in value, but only 1% in volume.

Germany was the top importer of extra-EU fresh strawberries, receiving 8.9 thousand MTs (ECU 7.6 million) in 1993, up 39% in volume and 17% in value since 1988. Poland was Germany's top extra-EU supplier, accounting for 87% of extra-EU imported volume in 1993. Almost all Polish supply entered during June and July. The United States supplied 4% of total German imports from non-EU suppliers, followed by Morocco (3%) and Mexico (3%).

Total 1992 imports, including those from other EU suppliers, stood at 97.0 thousand MTs (ECU 214.5 million), with 91% supplied by other EU member countries. Spain and Italy were both major suppliers (32.6 thousand MTs and 34.7 thousand MTs, respectively). Spanish supply enters mainly during the period February-June, peaking in April. Italian supply increases in the middle of Spain's season and runs through July. France, Belgium, and the Netherlands also supply the German market, together accounting for 20.9 thousand MTs in 1992.



France imported 5.5 thousand MTs (ECU 10.2 million) of fresh strawberries from non-EU suppliers in 1993, up 57% since 1988. Mo-



rocco, is France's top source for extra-EU strawberries, accounting for 63% of total extra-EU tonnage in 1993. In 1993, Morocco supplied the market exclusively during the period January-April. Poland accounted for most remaining extra-EU imports, supplying chiefly during the summer months when prices are lowest and EU production is highest. The United States, Mexico, Colombia and Israel supply small quantities during the off-season.

Total 1992 imports, including both extra and intra-EU suppliers, totaled 50.8 thousand MTs (ECU 118.0 million). Spain accounted for 94% of overall volume. However, Spain's exports to France have increased only 2% over the last five years, while French extra-EU imports have increased 57 percent.

The United Kingdom imported 3.4 thousand MTs (ECU 6.7 million) of fresh strawberries from non-EU suppliers in 1993. The United States supplied 46% of this amount, chiefly during the period July-September. Morocco supplied 32% of imports from non-EU members, with peak imports occurring during the period April-June. Israel, Colombia, Egypt and Kenya contributed lesser amounts, entering from November through February. Extra-EU supply was up significantly from 1988 levels (1.4 thousand MTs, ECU 3.3 million), propelled mainly by expanding volume from both the USA and Morocco.

Total 1992 import figures (21.7 thousand MTs, ECU 48.4 million), which also includes trade with other EU member countries, reveal that 82% of both volume and value are sourced from within the EU, mainly from Spain.

The Netherlands sourced 4.1 thousand MTs (ECU 3.2 million) from extra-EU suppliers in 1993. Poland supplied the majority of extra-EU imports (3.6 thousand MTs), exclusively during the peak summer season. Other suppliers included Romania, Israel, Morocco, and Colombia.

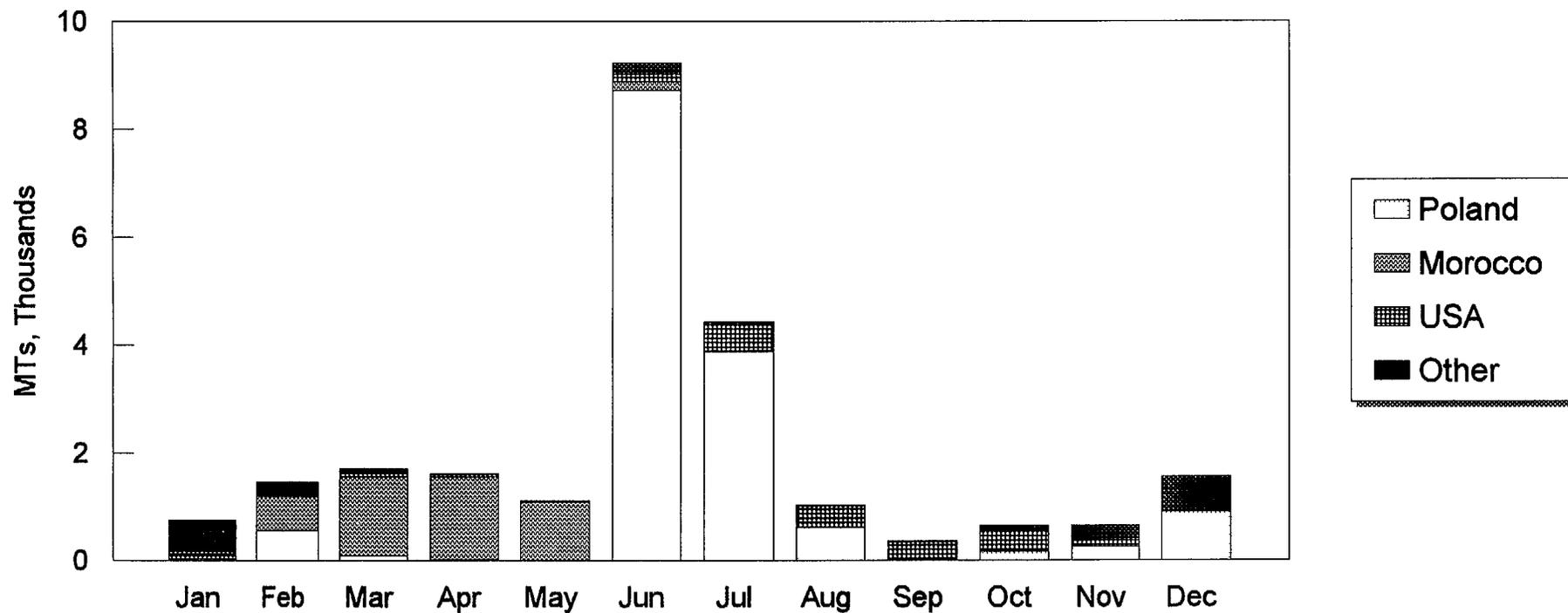
ASIA

Japan's import market for fresh strawberries has grown 40% in terms of both volume and value since 1988, with 1993 imports at 3.9 thousand MTs (US\$27.4 million). All imports entered between May and December, with 99% of volume sourced from the United States. US supply has more than doubled since 1985. New Zealand and Australia were the only other countries to supply the Japanese market in 1993. 1994 import volume is expected to be the highest ever, due to lower domestic production. A general trend of decreasing domestic production bodes well for increased growth in the import market.

Hong Kong imported 2,425 MTs (HK\$70.4 million) of fresh strawberries in 1993, up from 1,478 MTs (HK\$46.7 million) in 1992. The United States supplied 51% of total imports in 1993, followed by Australia (22%) and New Zealand (14%). The United Arab Emirates, the United Kingdom, Taiwan, and China supplied most of the remainder. The United States and Australia supplied product year-round, with U.S. supplies highest during the period February-October. New Zealand strawberries enter Hong Kong chiefly from November through January.

Figure 1: EU Imports of Fresh Strawberries

1993, Extra-EU



Source Eurostat

Table 1 New Convent Garden (London) Wholesale Market Prices for Strawberries

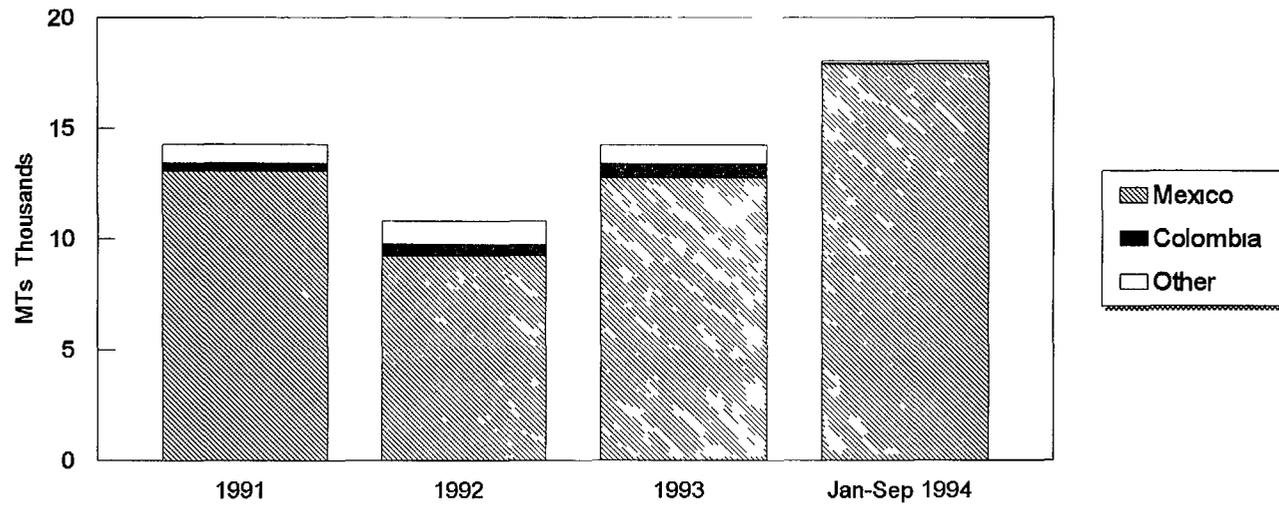
In Pence by Punnet Unless Otherwise Noted

		Israel	Colombia	USA	Egypt	Spain	Belgium	France	Holland	Italy	Kenya	Zimbabwe	New Zealand
Jan	7	100											
	11	120	80	170									
	18			180									
	25	120	120	170/12oz									
Feb	1	100		160	70	80							
	18												
	22	60		140	50	50							
March	1	70		120		52							
	8			150		60							
	15	50		120		40							
	22					40							
	29					42							
April	5			160		28							
	12					25				30			
	22			120		35				35			
	26			130		48							
May	3			150		40	75	110	70				
	10					25		100		30			
	17					28/250g	120	50/250g pun		35/250g pun			
	24					22	130/500g	100		32			
	31						160/500g	100/500g		45			
June	7			130/12oz		18/250g	120/500g	120					
	17			140		50/250g	125/500g						
	24												
July	1			140			80/500g						
	8			120/16			130/500g						
	15						95/500g						
August	7												
	14												
	21												
	26			150/14oz									
September	9			130/12oz									
	16			130/12oz			120/500g						
	23			120/12oz									
	30						150/500g						
October	7			120/12oz			90/500g						
	14			130/12oz			85/500g						
	21			150/12oz			115/500g						
	28			150/12oz			95/500g						
November	4						95/500g					100/250g	
	11			175/12oz			90						
	18			120/12oz			70		100				180
	25								175/500g				
December	1										100		
	9			250/12oz			280/500g						
	16	150/250g					140/500g		175				

Source Fresh Produce Journal

Figure 2 US Imports of Fresh Strawberries

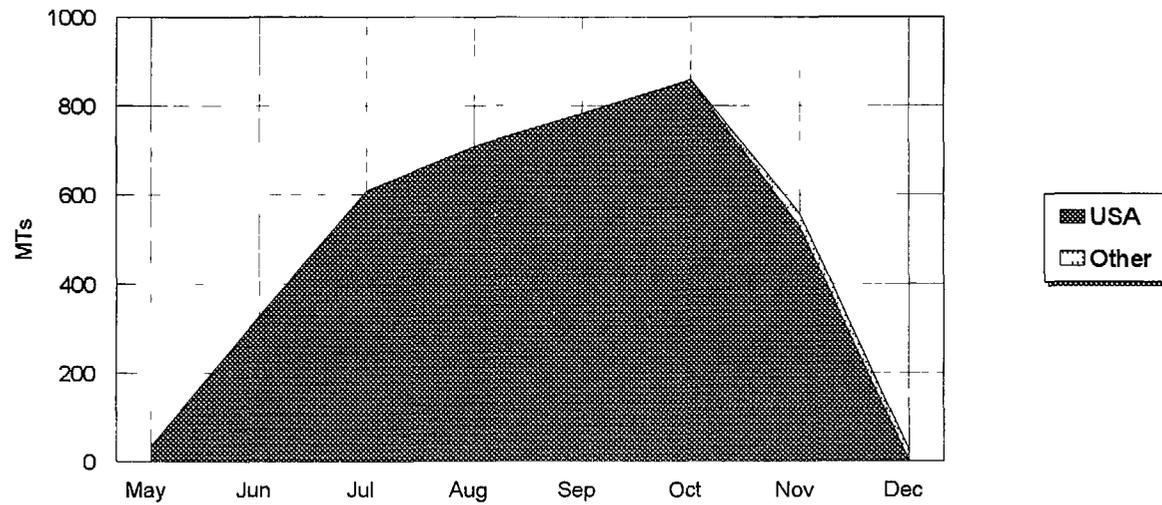
1991 - Sept 1994



Source NTDB

Figure 3 Japanese Strawberry Imports, by Month

MTs 1993



Source Japan Tariff Association

TABLE GRAPES

UNITED STATES

The U S import market for table grapes (324 thousand MTs, US\$275 million in 1993) is dominated by Chile (see Figure 1). During the 1980's, Chile's exports to the U S of table grapes climbed at a rapid rate, averaging an increase of 25,500 Metric Tons (MTs) per year. During the past three years, Chile's exports have fallen off slightly, reflecting a weak dollar and an increased emphasis on quality rather than quantity. The Chilean Congress is currently debating whether to introduce mandatory national quality standards for exports. Mexico is the only other significant foreign supplier to the United States, shipping about 40 thousand MTs of grapes per year.

EUROPE

European imports of table grapes from outside the EU have increased dramatically in the last five years, from 127,000 MTs in 1988 to almost 190 thousand MTs (ECU237million) in 1993. Chile is currently the largest non-EU supplier to this market, followed by post-boycott South Africa right behind. Other fairly established non-EU suppliers include the U S, Turkey, Israel, and Argentina. New suppliers include India, Egypt, Jordan, and Swaziland.

In both 1992 and 1993, the largest volumes of table grapes entering the EU from abroad arrived during March and April. In general, the period February-July constitutes the bulk

of the extra-EU import season, with Italy and Spain exporting large volumes of grapes to other European countries between August and December.

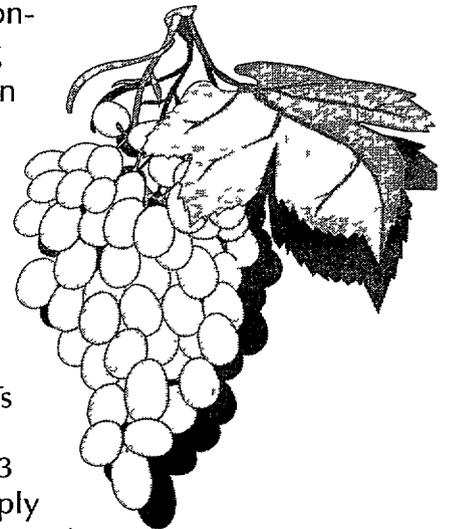
In general, the European consumer prefers seedless grapes. Varieties depend on the country, the English prefer white grapes, such as Thompson and Superior, whereas the French prefer colored varieties such as Muscatel and Ribier, and Germans like Yellow Thompson, Ribier, and Sultana.

France's imports of table grapes have risen by 11 thousand MTs since 1988. However, most of this increase is accounted for by Spanish and Italian product. Extra-EU imports dropped from 10 thousand MTs in 1992 to only 6 thousand MTs in 1993.

Chile is the largest non-EU supplier, shipping most product between March and May.

Belgium has seen a dramatic increase in its non-EU table grape imports in the last five years, from about 5 thousand MTs in 1988 to almost 23 thousand MTs in 1993. Almost all of this supply came from South Africa. A monthly analysis shows that South Africa ships its greatest volumes to Belgium during the period February-May.

Holland imported 20 thousand MTs more table grapes in 1993 from outside the EU than in 1988. Almost all of this increased





volume came from Chile, which sent large volumes from January until July. Holland is a major European port of entry for fresh produce, and much of the volume received is re-exported to other European countries.

Germany is the largest import market for table grapes in Europe, and its imports of non-EU product grew by 20 thousand MTs from 1988-1992, before falling off by a full 10 thousand MTs in 1993. Both the increase of the five years previous and last year's decline were due primarily to changes in South African supply, but Chile, Turkey and Israel are also significant suppliers. South Africa and Chile supply as the Spanish season is ending (February) until about July, when Italy comes on.

Italy, a large producer and exporter of grapes, is a rather small import market for table grapes (about 12 thousand MTs total). Its import season is short (December-May), and it sources primarily from Spain, Chile and South Africa.

England is the second-largest import market for table grapes in Europe, and imports of non-EU product have grown by an average of 3,000 MTs annually (to 54 thousand MTs) over the last six years. This growth has been led primarily by South Africa and Chile, but Indian, Brazilian, Jordanian, and Egyptian product have found a market in Great Britain as well. These four countries are all trying to take advantage of a short market window after Chile and South Africa and before Spain and Italy supply the market (May and June). For UK importer selling prices for the current year, see Table 1.

ASIA

Hong Kong imported 35 thousand MTs (US\$64 million) of grapes in 1993, with 22 thousand MTs coming from the United States and 10 thousand MTs arriving from Chile. South Africa and Australia also ship grapes to Hong Kong. In 1993, most Chilean grape arrived in March and April, with U.S. grapes arriving in September-December (see Figure 3).

Singapore imported 12 thousand MTs (US\$30 million) of grapes in 1993. Sixty percent of grape imports were from the United States, 21 percent from Australia, and 14 percent from Chile. Australia and Chile supplied product to Singapore at the beginning of the year (January-May), while the United States supplied in the remaining months.

Japan imported only 7 thousand MTs (US\$19 million) of grapes in 1993. About 54 percent of this supply came from Chile, with 42 percent from the United States (see Figure 5). Most of Chile's supply arrived in March and April, with U.S. supply arriving in September-December.

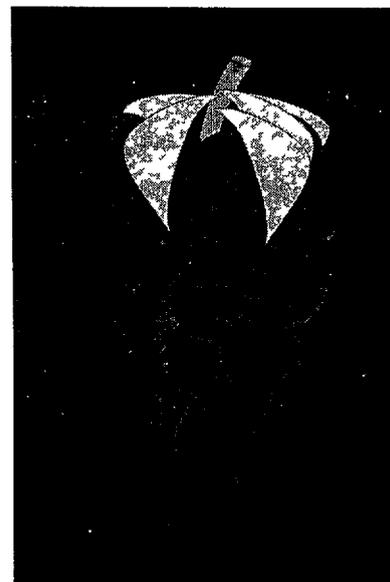
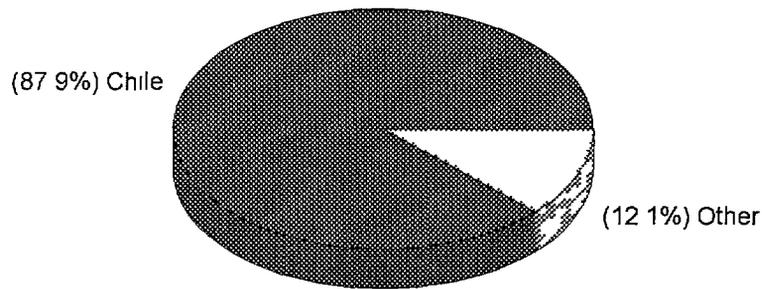
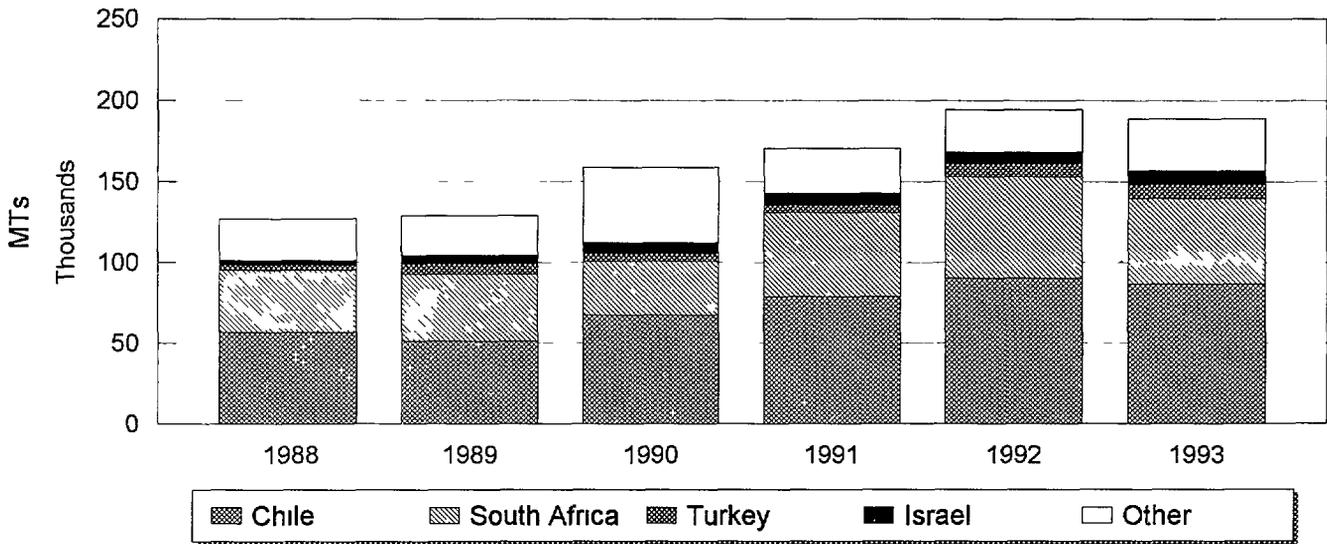


Figure 1 US Imports of Table Grapes
1993, by Volume



Source NTDB

Figure 2 EU Imports of Table Grapes
1988 - 1993 Extra EU



Source Eurostat

TABLE 1 UK IMPORTER SELLING PRICES FOR FRESH GRAPES

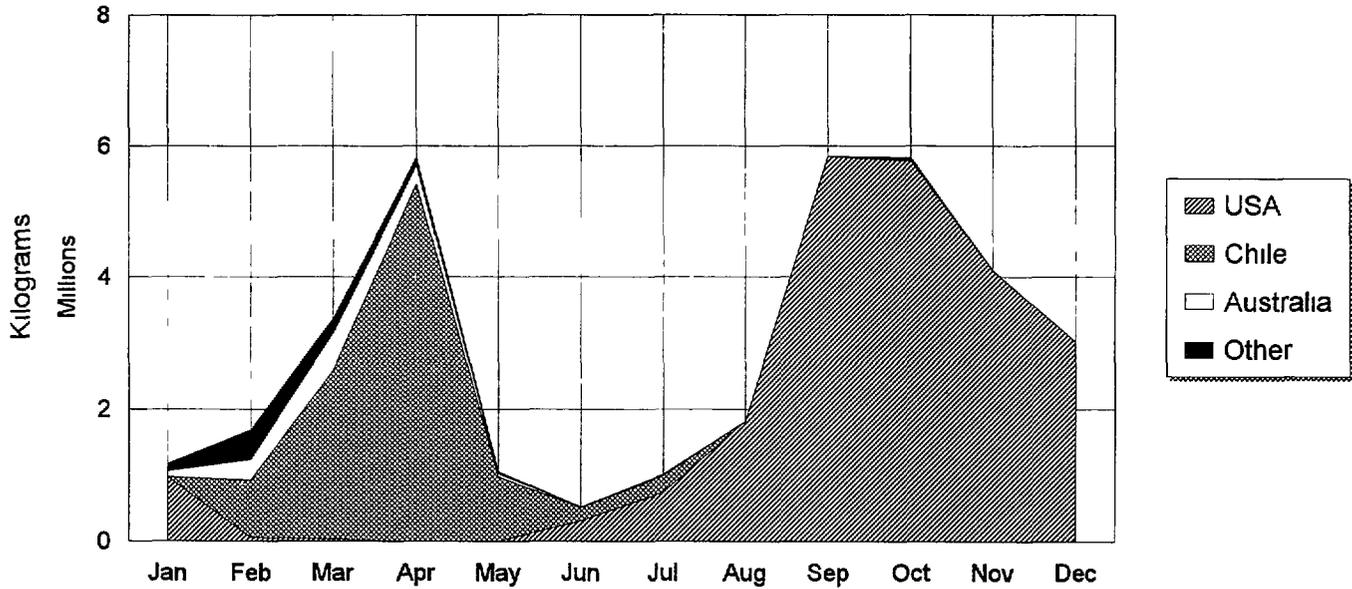
Importer	UK																					
	Exporter	Chile fla	Chile per	Chile rib	Chile thom	Egypt fla	Egypt thom	India fla	India blk sdl	India thom	India per	Mexico thom alr	Nambila thom	South Afr bar	South Afr dau	South Afr aim	South Afr fla	South Afr thom	South Afr sult	South Afr ben	South Afr alph	
1993	Dec 2																					
	Dec 9																					
	Dec 16																					
	Dec 23		3 00		3 10			2 20	2 10	3 40				3 20				4 40 (air)	4 4 (air)	4 2 (air)		
	Dec 30									1 30									4 4 (air)			
1994	Jan 6																					
	Jan 13	2 80																				
	Jan 20		1 60		1 85																	
	Jan 27	1 80	1 60																			
	Feb 3	1 40	1 60		1 60																	
	Feb 10	1 45	1 60		1 60												2 20	1 80	1 80	1 35	1 40	
	Feb 17	1 35			1 70													1 90		1 75		
	Feb 24																					
	Mar 3																					
	Mar 10	1 15			1 20																	
	Mar 17	1 15			1 40																	
	Mar 23																					
	Mar 31	1 00			1 40						1 40				1 20					1 60	1 10	1 20
	Apr 7																					
	Apr 14																					
	Apr 21	1 12		1 20	1 40					0 80	1 45				1 10	1 55			1 45			
	Apr 28																					
	May 5	1 25		1 15	1 30					1 40					1 20	1 50	1 35					
	May 13	1 25		1 25	1 40					1 50					1 25	1 85						
	May 19			1 25	1 50					1 60					1 30	1 70						
May 25			1 20						1 35	3 05				1 30	1 70	1 60						
Jun 1	1 30													1 35	1 95	1 80						
Jun 9	1 35		1 15	1 30					1 10					1 35	1 80	1 70						
Jun 15	1 25		1 15		1 20	1 20	2 00		1 35	1 45				1 27	1 85	1 85						
Jun 22			0 95	1 20			1 90		1 00													
Jun 29																						
Jul 6			1 00				1 75		1 75													
Jul 14			1 00				1 75		1 75													
Jul 21																						
Jul 28			1 05																			

Source ITC/MNS Geneva

ABBR

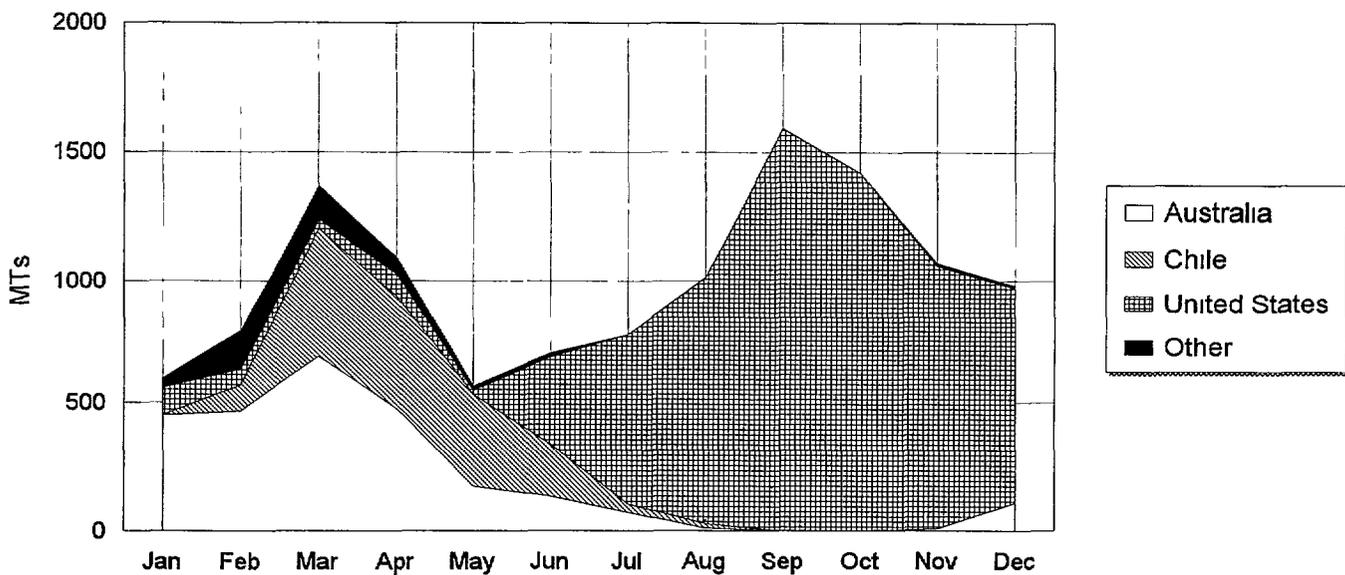
<u>white grapes</u>	<u>other grapes</u>
alm=almeira	alph=alphonse
dau= dauphine	bar=barlinka
ita=italia	ben= ben hannah
mus=muscat	blk sdl=black seedless
newx=new cross	car=cardinal
per=perlette	fla=flame
sul=sultana	rglo=red globe
sup=superior	rib=ribier
thom=thompson seedless	roy=royal
vict=victoria	rub=ruby
walt=waltham cross	

Figure 3 Hong Kong Grape Imports
Kilograms, 1993



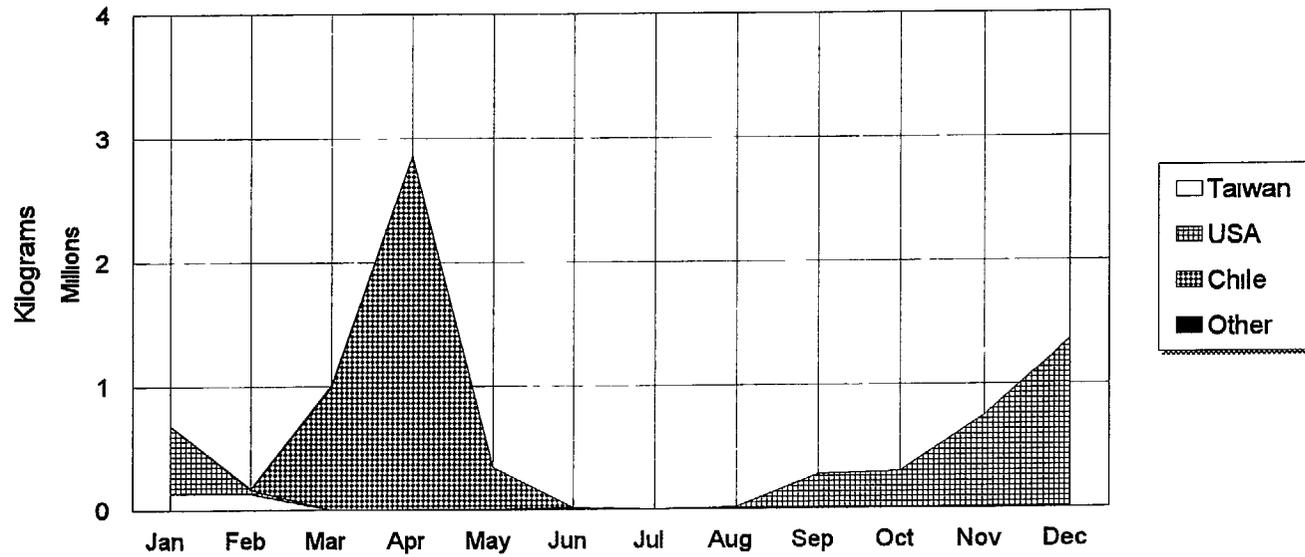
Source Census and Statistics Dept, Hong Kong

Figure 4 Singapore Grape Imports
Metric Tons, 1993



Source Singapore External Trade Statistics

Figure 5 Japanese Grape Imports
Kilograms, 1993



Source Japan Tariff Association

**WORLD MARKET OVERVIEWS
FOR SELECTED
FRESH PRODUCTS**

Markets for Dehydrated Vegetables

Trends in Product Usage

The soup industry is the largest user of dehydrated vegetables, and is dominated by several large multinational corporations. CPC International Inc (Knorr), Nestle (Maggi), Unilever (Brook Bond and Lipton), and Campbell Soup. Hot air processed vegetables, used in dried packet soups, account for most product usage, with secondary quantities of freeze-dried, puff-dried, and precooked vegetables used in instant soups. Canned and frozen soups use lesser volumes. Potatoes, onions, tomatoes, leeks, carrots, peas, mushrooms, asparagus, garlic, parsley, bell peppers, cabbage and cauliflower are the most popular dehydrated ingredients, with broccoli quickly becoming another important soup ingredient.

Other food processors use dehydrated vegetables in a variety of manufactured foods from rice mixes, sauces, and microwave meals to bakery, dairy, meat, fish and baby food products. Dehydrated onions and garlic are the most frequently used seasoning components in processed foods. Pet foods use primarily carrots, garlic, and onions.

The institutional food service and catering sector is another important consumer, estimated to use about one-third of all dehydrated vegetables supplied as substitutes for fresh produce. Low preparation costs and spoilage rates are keys to success in this industry. Institutional buyers are also a major market for many of the processed products listed above.

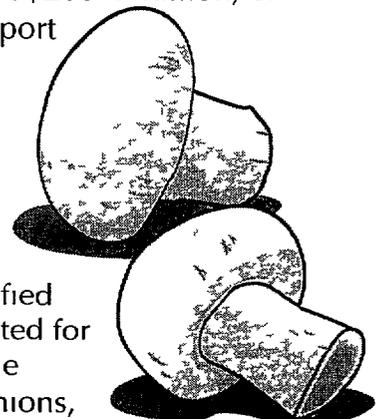
Soups and other processed food products are the primary dehydrated vegetable products sold by the retail sector. However, some dried

but not further processed products are sold, namely instant potatoes, dried specialty mushrooms, and sun-dried tomatoes.

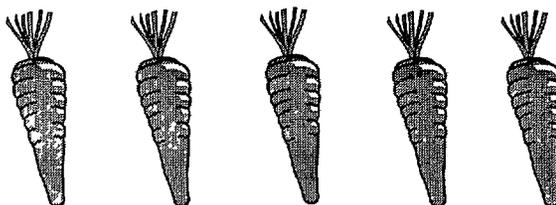
Major Importers

World trade in dehydrated vegetables reached US\$1.1 billion in 1992, an increase of over 20% since 1988. Developing nations have benefitted most from this market expansion, raising their world market share from 52% to 61% of total world supply over the same period. China has shown the most growth as a supplier of dehydrated vegetables, increasing its market share from 29% (US\$235.0 million) in 1988 to 36% (US\$383.0 million) in 1993. Much of China's growth is directly attributable to Shiitake mushroom exports to Japan.

Japan is the world's largest importer of dehydrated vegetables (US\$208.4 million, or 19% of total world import value). Shiitake mushrooms were its largest import in 1993, followed by bamboo shoots, osmund, Jew's ear mushrooms, and onions. Other non-specified dried vegetables accounted for 24% of total import value. With the exception of onions, which are sourced primarily from the United States, almost all supply is sourced regionally and mostly from China.



Hong Kong is the second largest import market for dehydrated vegetables (US\$171.2 million in 1992). Official trade statistics



reveal that dried mushrooms were the largest import category, followed by "other" dried vegetables. Dried onions and potatoes account for less than one percent of total import value. China dominates the market. Hong Kong re-exports more than half of its imports.

Germany is the largest European market for dehydrated vegetables and the third largest world market (US\$107.8 million in 1992). Onions are the single largest imported product, followed by "other" vegetables and mushrooms. Carrots and tomatoes individually accounted for less than 2% of total import value. China, the United States, Hungary, Egypt, Poland and India are the top suppliers.

The **United States** imported US\$96.1 million of dried vegetables in 1992. Dried tomatoes are the largest import, followed by mushrooms. Together these account for over 60% of dehydrated imports into the United States. An additional 30% are "other" vegetables, with onions and carrots accounting for the remainder. China, Chile, Spain, Japan, Mexico, and Morocco are the largest suppliers.

Singapore imported US\$58.2 million of dried vegetables in 1992, almost all classified as "other" vegetables. Almost all product is sourced regionally.

Other significant importers include Italy (US\$48.6 million), France (US\$46.6 million), the United Kingdom (US\$46.6 million) and the Netherlands (US\$33.2 million). European Union members source almost half of their import requirements from other EU members, although almost three quarters of the two

largest imports (mushrooms and onions) are sourced from non-EU suppliers.

Packaging Specifications

Historically, most product was packaged in hermetically-sealed containers of steel or plastic. This method proved expensive and is being replaced by lower cost alternatives such as the "bag-in-a-box," wherein product is placed in a sealed polyethylene bag protected and supported within a cardboard or fiberboard box, or a multi-walled sack. Rectangular boxes are often used for easy palletization.

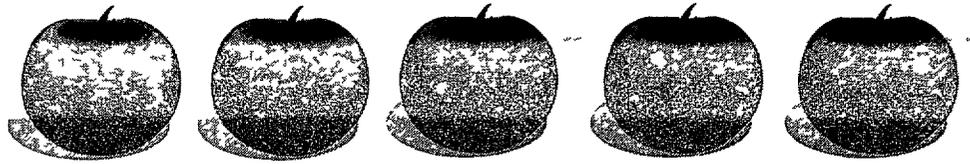
Standard pack sizes vary between 5 kilograms and 25 kilograms, with importers preferring 5-10 kilogram packs. The food service sector prefers much smaller package size (500g-3kg), although this demand is usually met through repacking by the importer or processor.

Trade Trends for Selected Dried Vegetables

Mushroom

Japan, Hong Kong, Singapore, the United States, and the EU imported US\$290.1 million of dried mushrooms in 1993. This category is the single largest in dehydrated vegetables for each of these markets. China is the largest supplier (US\$158.0 million in 1993). Japan (mainly re-exports), Chile, and Taiwan are also major suppliers.

The United States imported US\$22.2 million of dried mushroom in 1993. Air- and sun-dried imports accounted for US\$14.0 million (1.3



thousand MTs) of the total, up 16% since 1991. Chinese and higher-priced Japanese product accounts for more than 60% of total imports, followed by Chilean, Hong Kong, and Taiwanese product. Other dried mushroom imports have increased only 4% since 1991, with 1993 imports at US\$8.2 million (558 MTs). China supplied about half of U.S. imports, with about one-fourth sourced from Japan. Other major suppliers include Germany, Taiwan, France, and Korea.

Italy imported 1.1 thousand MTs (ECU 19.8 million) of dried mushrooms from non-EU suppliers in 1993. Most product was sourced from China (46%) and the former Yugoslavia (23%), with the latter's market share plummeting from a high of 80% in the late 1980's. Most other non-EU supply entered from Slovenia, Romania, and Bulgaria.

Germany imported 1.3 thousand MTs (ECU 12.8 million) of dried mushrooms from extra-EU sources in 1993. China was the primary supplier with its product accounting for 78% of imported volume, followed by Chile, Taiwan, India and Vietnam. German imports from non-EU suppliers has expanded by 36% over the period 1988-1993.

France's 1993 imports from non-EU suppliers of dried mushrooms came mostly from China (62%), followed by Vietnam, Pakistan, Chile, and India. Extra-EU imports in 1993 (986 MTs, ECU 15.7 million) reflect a 50% increase over 1988 levels.

Japan's official trade statistics break down dried mushroom imports into the following categories: shiitake, Jew's ear, and "other." Shiitake mushroom imports totaled 7.2 thou-

sand MTs (¥8.0 billion) in 1993, with China supplying the vast majority (98%). China is also the major supplier for Jew's ear mushrooms, with a 75% share of total 1993 import volume (2.2 thousand MTs, ¥2.0 billion). Taiwan is the only other major supplier. The import market for mushrooms other than shiitake and Jew's ear varieties is also dominated by China (74% of total imports of 43 MTs, ¥152.4 million), although product from France, Brazil, and India has a much higher unit value.

Singapore reports imports of 1.5 thousand MTs (S\$22.6 million) of shiitake mushrooms in 1993, mainly from China. Additionally, China supplies about three-fourths of other dried mushroom imports (which totaled 903 MTs or S\$9.3 million in 1993), with most of the remainder entering from Vietnam and Hong Kong.

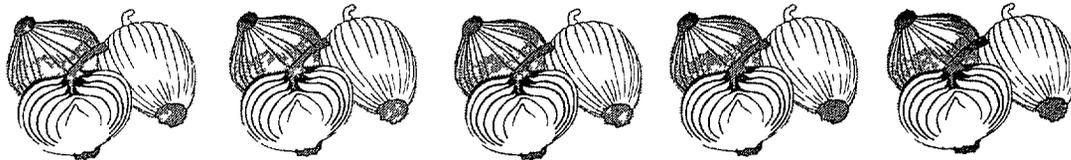
Hong Kong imported 8.5 thousand MTs (HK\$643.4 million) of dried mushrooms in

1993. China supplies almost all volume imported, although small volumes of much higher value product also enters from Japan.

Onion

Dried onion imports by selected countries totaled US\$61.3 million (not including intra-EU trade) in 1993. The United States is the largest supplier to all markets examined, followed by Egypt and China.

United States imports of dried onions have remained relatively stable over the period 1991-1993, increasing only 5 percent to 2.2 thousand MTs (US\$3.0 million). Mexico



(73%) and China (24%) are the largest suppliers

Germany imported 9 9 thousand MTs (ECU 18 2 million) from extra-EU sources in 1993, up 43% since 1988 Most extra-EU imports are sourced from the United States, Egypt, and Hungary India and Syria have dramatically increased their market share since 1988

The **Netherlands** imported 3 4 thousand MTs (ECU 5 6 million) from non-EU sources in 1993, 28 percent more than in 1988 The United States supplied 36% of total imports from non-EU suppliers, followed closely by Egypt (35%) India, which is the third largest volume supplier with a 18% volume share, has increased exports to the Netherlands from only 51 MTs in 1988 to 619 MTs in 1993

The **United Kingdom** imported 6 5 thousand MTs (ECU 11 4 million) from extra-EU sources in 1993, mostly from the United States (43%) and Egypt (31%) Other suppliers include India (10%), Mexico (10%) and Hungary (4%) Imports from suppliers outside the EU have increased 7% since 1988 The US market share has been declining, while India's exports to the UK have increased from 82 MTs in 1988 to 659 MTs in 1993

Japanese dried onion imports (4 8 thousand MTs, ¥1 4 billion) are sourced primarily from the United States (79%) and China (15%) Bulgaria, Romania, and India supply most of the remainder

Hong Kong reports importing only 345 MTs (HK\$5 6 million) of dried onions in 1993, with more than 80% supplied by China and most of the remainder from the United States

Tomato

The **United States** imported 6 4 thousand MTs (US\$ 25 9 million) of dried tomatoes in 1993 Tomatoes are the United States' largest dried vegetable import Spain, the largest supplier, has increased its exports to the US by 14% over 1993-1991, while the total market grew by 8% over the same period Morocco is the second-largest supplier, with a 23% import market share, followed by Switzerland, Portugal, Chile and Italy

Italy is the top Western European market for non-EU suppliers, with total extra regional imports of 771 MTs (ECU 1 1 million) in 1993 Turkey and Switzerland supplied a combined 65% of total imports from these suppliers in 1993 Albania was the next largest supplier

France's dried tomato imports from non-EU suppliers have increased about 25% in volume and value since 1988, with 1993 imports at 201 MTs (ECU 911 thousand) Imports from other EU members has traditionally accounted for approximately 25% of total import demand Morocco supplied the bulk of French imports from non-EU suppliers, followed by Hungary and Turkey

Germany sources most of its import demand for dried tomatoes from EU countries, with only 10 percent of total 1992 imports of 1 3 thousand MTs (ECU 5 7 million) sourced from outside the European Union Israel, Turkey, Chile and Hungary are the largest non-EU suppliers



The **United Kingdom** also sources most of its dried tomato imports from within the EU (primarily France) Imports from non-EU suppliers totaled only 186 MTs (ECU 817 thousand) in 1993, primarily from Turkey, Hungary, Morocco and Chile

Germany imported 877 MTs (ECU 1 0 million) from non-EU suppliers in 1993 Poland accounted for 70% of the total, followed by much smaller amounts from the Czech Republic, China and the United States Historically, most German import demand is sourced from within the EU (mainly Netherlands, Belgium, and France)

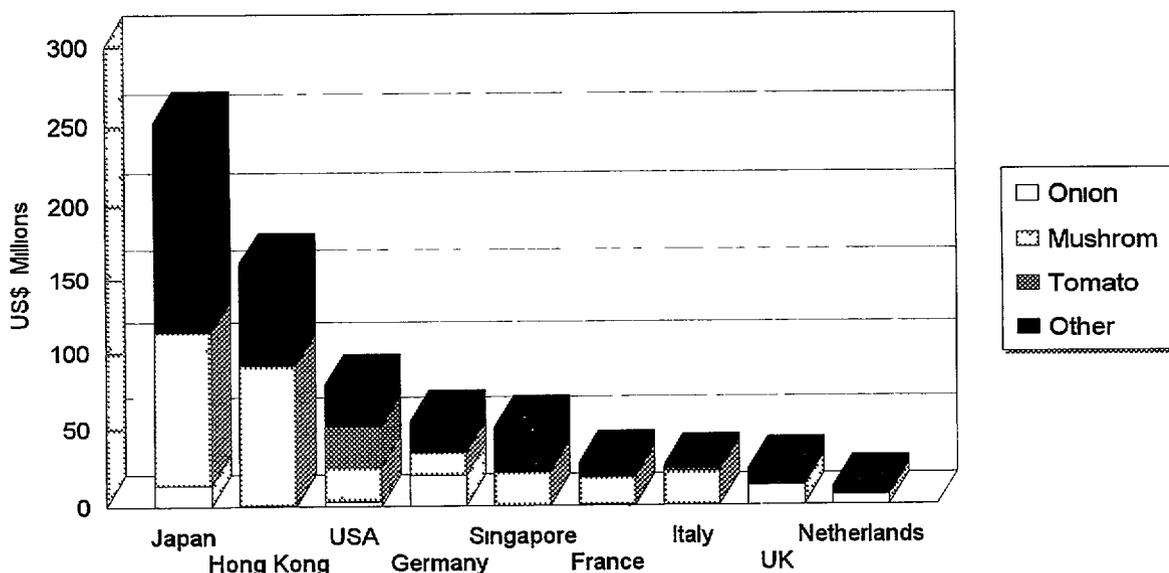
Carrots

The **United States** sources most of its import volume from France (41%), followed by Germany (22%), Israel (10%) and China (10%) Imports in 1993 totaled 897 MTs (US\$2 1 million), and have grown by 17% over the period 1991-1993

The **Netherlands** imported 493 MTS (ECU 605 thousand) of dried carrots from extra-EU sources in 1993, mostly from Poland

Sources *Dehydrated Vegetables A Survey of Major Markets (ITC, Geneva, 1993), U S Department of Commerce Bureau of Census, Japan Tariff Association, Singapore External Statistics, Hong Kong Census and Statistics Department*

Dried Vegetable Imports
1993



Source Various National Trade Statistics
Note EU includes only extra-EU trade

Markets for Tropical Fruit Juices Concentrates and Purees

A Growing Taste for Exotics

High levels of imports are required to sustain the food and fruit juice industries in developed countries. The novel and exotic draw consumers looking for "something different." When a food item or ingredient also possesses a positive nutritional profile and a "good for you" image, the possibilities are limitless. Many food companies in North America and Europe have already realized the advantages of using tropical fruit ingredients in their products and identifying tropical fruits on their labels. In the United States, for example, between 1991 and 1992 a 20% increase in the number of new food and beverages introduced that identified mango, passion fruit, guava or banana on their labels.

Many tropical fruits are extremely rich in Vitamin A or β -carotene, which makes them nutritionally desirable. Furthermore, their chemical composition makes them highly compatible in a wide variety of beverages, dairy products, desserts, sauces, salad dressings and fillings, as well as in bakery products and baby foods. The relatively low prices of many exotics such as passion fruit, mango and banana makes them very attractive to manufacturers as ingredients.

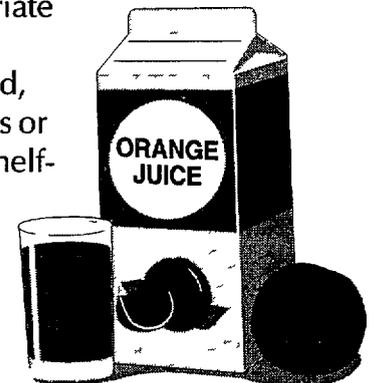
Western European manufacturers alone need to import 880,000 tons of fruit juice concentrate per year. Fruit juices and nectars, which are made with these concentrates (one of many uses), have sales that exceed 6 billion liters, now worth more than US\$8 billion. The market is predicted to reach US\$9.04 billion by 1997. Although orange juice represents approximately two thirds of the total, demand for tropical fruit juices, concentrates and

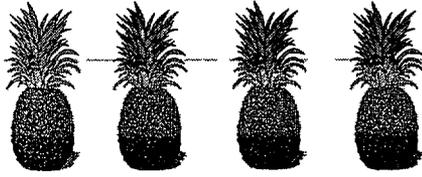
related products has increased steadily in recent years. Tropical juice imports amount to roughly 115,000 tons or 13% of the total Western European market for concentrates. Pineapple accounts for 74,000 tons, followed by passion fruit, banana, mango, guava and other exotic fruits. The US and Western Europe are the largest importers of exotic juices. The main European markets are found in Germany, the Netherlands, France, Britain and Spain.

Fruit Juice Concentrates and Related Products

Tropical fruit juices are now generally traded as concentrates. Water is removed by a low pressure, partial vacuum evaporation until the desired degree of concentration is obtained (measured in degrees Brix). Oftentimes, an additional distillation step is performed to capture volatile aromas which are added back to the juice. The concentrate is sanitarilly filled into drums, bags, pails and other containers. Frozen concentrates are also available.

Purees contain the fruit pulp and are generally preserved by an appropriate heat treatment. Related products can be obtained, such as powders, crystals or granules. With a long shelf-life (6 to 12 months under proper storage, depending upon the product) tropical fruit products are convenient, versatile and value-adding ingredients for manufacturers. However, locating reliable





and consistent sources of these fruits remains difficult for many manufacturers. Industrial users say that finding suppliers who can comply with the sophisticated quality standards of their markets and their own exacting specifications remains a challenge. According to industry and trade sources, the market for many tropical fruit products is mostly limited by the availability of supply rather than by consumer demand for products made with these ingredients.

Pineapple

Production Overview

World pineapple production is estimated at around 12 million tons of which approximately 25% is processed. There are many varieties of pineapple but some of the most widely used for processing into juice are Smooth Cayenne, Perola and Queen. Juice production first started in the canneries in the form of single-strength juice packed in cans. Then, with increasing fruit production, the residual juice was concentrated and packed aseptically in drums. Concentrate is also sold frozen.

Annual exports of pineapple juice concentrate by the major producing countries averages 170,000 tons. Thailand is the world's largest pineapple juice producer with an output of 85,170 tons in 1993. Almost half of the production is exported to the United States, but Thailand is also the major supplier to the European Union. It is followed by the Philippines with exports of 36,930 tons in 1993 (and a total production estimated at 45-50,000 tons).

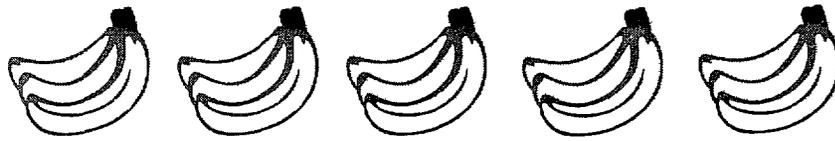
Juice supplies from Indonesia have increased to around 20,000 tons, or 10% of the world supply, from virtually nothing five years ago and they are expected to continue to grow at a fast pace. Indonesia now ranks third in world production and it is forecast to become a leading world supplier in the future. Other major exporters include Kenya (8,000 tons), South Africa (7,000 tons), Brazil (6,000 tons) and Mexico (4,000 tons).

Markets

World imports of pineapple juice concentrate totaled 215,000 tons in 1993. This is up 4.5% from 1992 and more than double the level of trade seven years ago. It should be noted that this figure is higher than actual demand because some of the European Union imports are traded between member countries, and are therefore double counted in official trade statistics.

In 1993, Europe was the largest importer, accounting for 55% of total imports (118,400 tons). Pineapple is the exotic fruit most widely used by European fruit juice manufacturers. In 1993, European Union imports of pineapple juice concentrate directly from producing countries were 63,100 tons and this figure reflects more accurately actual demand and usage.

In 1993, the main suppliers of the European Union market for pineapple juice concentrate were Thailand (40%), Kenya (13%), South Africa (12%) and the Philippines (10%). Most of European imports are 60/61 Brix concentrate.

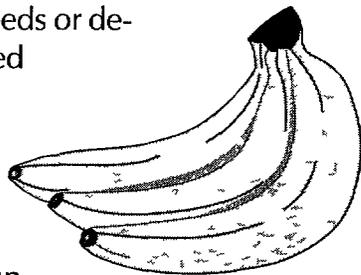


North America imported 90,000 tons in 1993 (84,000 tons for the USA, where imports have doubled since 1988) Japan and South Korea imported 6,700 tons in 1993 (less than half their 1991 imports)

In December 1994, pineapple juice concentrate prices ranged from \$825-\$900/ton C&F (60 Brix aseptic juice) and \$925-\$1,000/ton C&F (60 Brix frozen juice)

Banana

If the tropical juice market is often typified by unpredictable pricing and variable supplies, one product that has defied this trend in recent years is banana pulp. Most of the bananas grown for processing are turned to banana pulp (or puree) for industrial use. Banana pulp is widely used by food manufacturers as an ingredient. The general process includes peeling, mashing, thermal treatment and aseptic packaging to assure commercial sterility. There are several puree formulations available depending on product specifications: examples include products acidified with ascorbic or citric acid, non-acidified, frozen, with seeds or de-seeded. Dehydrated banana puree is used to make flakes. This form retains full flavor and color for use in dry applications or in products where viscosity and moisture control are critical. There is also an expanding world trade in slices, frozen concentrates, clear clarified juices, banana extract and 100% natural banana essence.



Production Overview

Though bananas originated in Asia, the largest growing region for bananas remains Central and South America. Honduras, Panama, Costa Rica, Guatemala, Ecuador and Columbia produce three quarters of the world's supply of bananas. Processing plants opened in the early 1990's in South and Central America in anticipation of a large demand from Eastern Europe that failed to materialize. India, a relatively new supplier, has also stepped up production.

There are an estimated 13 plants currently in operation throughout the world with a total processing capacity of 150,000 to 175,000 tons, and new ones are reportedly being built in Columbia and Brazil. Ecuador, Columbia, Peru, Costa Rica, Honduras and Panama have all had their banana pulp exports boosted, having been granted duty-free access to the European Union.

Markets

Actual world demand for banana pulp is difficult to measure because of the lack of trade figures from many countries and because of the absence of a statistical breakdown for the product in Europe, the largest market. Trade estimates are the only guide to the world market size and these range from 50,000 to 100,000 tons (single strength basis). According to trade sources, demand is growing, but at a slow pace and the market is generally over-supplied.

The USA represents an estimated 30 to 40% of the world market. In 1993, the USA imported 27,825 tons of pulp, up 12% from 1992 and

27,825 tons of pulp, up 12% from 1992 and up 100% from 1987. Its main suppliers were Costa Rica (7,300 tons), Ecuador (6,350 tons), the Philippines (4,875 tons), Panama (4,525 tons) and Honduras (3,425 tons). In North America, manufacturers are increasingly using flakes, powders, extracts and essences in a variety of new products, oftentimes in combination as multi-functional ingredients. There has been a diversification of uses in recent years and banana products are increasingly found in bakery, cereal and dairy products.

In 1992, EU imports of tropical fruit pulps (banana and mango) were 55,700 tonnes (up from 36,000 tons in 1989). Main suppliers include Brazil, Panama, Honduras, the Philippines, India and Thailand.

In Europe, a large importer is Germany and the pulp is mainly used as an ingredient in manufactured products such as baby foods, yogurts and bakery goods. Increased consumer interest in healthy living has boosted consumption of juices and prompted the introduction of more multi-vitamin mixed fruit drinks containing banana.

In 1994, prices were in the \$600-650/ton range (FOT) in Europe for single strength pulp. Trade sources indicate that Indian pulp was available on the markets at lower prices.

Mango

Mango puree is a thick fluid (which may contain small fruit pieces) which is rich in vitamin A and C, and which has a low pH. Mango puree is available in single strength, concentrate, and frozen forms. It has many applications in the food and beverages industries. Throughout the world, mango puree is

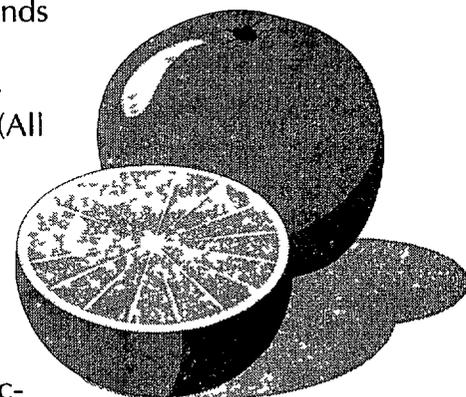
often used in juices, milk-based drinks and dairy products, instant desserts and cremes, as well as in baked goods. Mango puree and nectar can be further processed, and dried mango puree products are available to the food and beverage industries. Mango powder finds applications in dry products such as baby cereals, baking mixes, instant teas and desserts or candies.

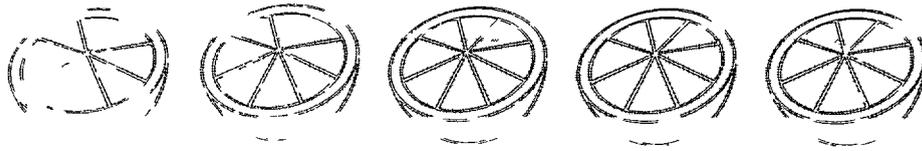
Production Overview

India is the largest producer of mangoes in the world, with production of 9.5 million tons in 1992, it accounted for 64% of world production. Exports of mango pulp have risen steadily to 27,500 tons in 1992/93. An 18% rise in mango pulp exports from India has encouraged growers there to step up plantings. Pulp is commonly produced from the Alphonso and Totopuri varieties.

India's major markets are Saudi Arabia (4,996 tons), UAE (3,543 tons), Kuwait (3,238 tons) and Yemen (3,143 tons). It also exports to Europe: Netherlands (2,966 tons), UK (1,701 tons), Germany (661 tons). (All figures are metric tons, 1992/93 season).

Major South American producers are Colombia, Peru, and Brazil. They supply the United States and some of the European market. Kenya also produces mango pulp on a smaller scale (about 800 tons a year).





Markets

US imports of frozen mangoes totaled 3,220 tons in 1993 (2,700 tons more than in 1992) Of these, 1,040 tons were from Mexico and 1,180 tons from Haiti Since 1994 Mexico benefits from duty-free access to the US market under the North American Free Trade Agreement

New markets are opening up in the Far East, and trade in the Middle East is active Indian pulp has been reported to be increasingly popular in Japan, Singapore and Korea

Thanks to their duty-free status, some South American producers have made significant inroads in European markets where their prices compare favorably (\$1,300/ton for 28 Brix concentrate)

Passion Fruit

Passion fruit, or maracujá as the Portuguese call it, was first introduced by Kenya into Europe in the mid-70's It is now grown all over the world and processed in an increasing number of countries Processing first into juice and then into concentrate took off in the early 1980's Passion fruit has the reputation to be the most unpredictable juice market of all

Passion fruit juice and concentrates are favorite ingredients in beverages, ice creams, yogurts and a variety of desserts Passion fruit concentrate can also be dehydrated to produce free flowing crystals These have applications in confections, hard and soft candies, chewing gums, baked goods, teas and beverage mixes

Production Overview

Production is characterized with erratic supplies and wild price fluctuations In an effort to regulate supplies, a body was formed by the major producing/exporting countries, the Passion Fruit Juice Producers Association The association seeks to bring much needed stability to the market However, the uncertainty of the market is said to be the main cause for the slowdown in demand, after a rapid expansion phase in the mid-1980's

Total production from main suppliers in Ecuador, Colombia, Brazil and Peru has been in the 10,000 to 14,000 tons range in recent years (50 Brix product), and total exports reached 12,000 tons in 1992 Ecuador has become the leading world exporter since 1993 (ahead of Colombia) In 1994, it exported around 4,200 tons of 50 Brix concentrate However, this was down 30% from 1993 (most plantations have reached maximum yield) and supplies are expected to be only 3,000 tons in 1995 New plantings should bring back production to the level of 5,000 tons by 1996

Ecuador is the leading supplier to North American, European and South American markets (Brazil, Colombia and Peru) In recent years, Ecuador has exported 1,500-2,000 tons of passion fruit juice concentrate Exports from Brazil and Peru averaged 2,200 tons and 1,100 tons, respectively, in the 1987-1992 period (all figures for 50 Brix concentrate)

Brazil has lost its share of the world market in recent years, with exports estimated at only 500-520 tons in 1994 Brazil is itself an important market where prices are favorable, and

the European Union

Markets

The market for passion fruit juice is often considered by the trade as one of the most unpredictable of tropical juices. The peaks and troughs of supply, along with variability in prices, have seriously impeded the trade.

The European Union is the world's largest market with imports of 8,770 tons in 1992. On average, Europe consumes 60-70% of world production. North America imported 2,960 tons in 1992, with the USA taking 20-22% of total world exports (1,500-1,700 tons). Other importers include Puerto Rico, Canada

and Japan (120 tons)

In 1994, passion fruit juice prices ranged from \$2,800 to \$3,000 / ton C&F in the US for 50 Brix concentrate. This compares to prices as high as \$6,000 / ton in 1991.

Sources:

US Department of Agriculture, Eurostat, National Statistics, Food News, International Food Marketing and Technology, Food Technology

Prepared by Veronique Lagrange, Vice President, Senior Food Scientist, Thomas J. Payne Market Development, Washington, D.C. for the International Horticultural Conference

World Exports of Passion Fruit Juice Concentrate						
MTs, Basis 50 brix						
	1987	1988	1989	1990	1991	1992
Colombia	2,487	3,286	2,068	1,889	5,069	7,000
Ecuador	800	1,100	1,200	1,485	1,627	2,100
Brazil	1,800	3,275	4,007	1,653	658	1,850
Peru	1,029	1,171	1,667	1,234	946	900
Total	6,116	8,832	9,042	6,531	9,750	11,850

Source: FoodNews, Passion Fruit Juice Producers' Association

EU Imports of Tropical Fruit Juices/Concentrates			
MTs			
	1991	1992	1993
Ecuador	1,216	1,562	4,639
Colombia	3,987	6,436	3,638
Thailand	2,184	2,320	2,040
South Africa	932	1,111	1,190
Brazil	1,840	1,653	1,175
USA	899	962	1,000
Peru	1,288	444	352
Kenya	232	95	64
India	238	70	53
Sri Lanka	77	52	44
Mexico	142	32	40
Venezuela	435	46	22
Other	13,852	7,753	8,915
Total	27,180	22,536	23,172

Source FoodNews, Eurostat

Includes other fruit and vegetable juices

Indian Mango Pulp Exports			
April - March Season, MTs			
	1990/91	1991/92	1992/93
Saudi Arabia	5,030	4,398	4,996
UAE	1,896	2,220	3,543
Kuwait	375	506	3,238
Yemen	4,332	5,790	3,143
Netherlands	1,307	2,081	2,966
UK	1,940	1,065	1,701
Hong Kong		46	1,533
CIS	200	2,724	1,255
Germany	1,398	1,034	661
Other	3,018	3,349	4,470
Total	19,496	23,213	27,506

Source FoodNews, National Statistics

World Imports of Pineapple Juice Concentrate						
MTs Thousands						
	1988	1989	1990	1991	1992	1993
USA*	45.8	54.1	65.4	68.0	83.0	84.0
Netherlands*	19.5	21.3	25.1	27.5	22.8	26.2
Spain	10.9	14.5	18.7	27.8	24.7	23.0
Italy*	12.0	11.7	11.6	14.3	11.3	18.6
France*	11.5	14.9	17.2	17.6	16.3	17.0
Germany	7.1	9.9	11.5	12.1	12.1	12.0
UK	13.5	15.2	11.8	9.7	6.7	9.3
Canada*	9.4	9.0	7.5	8.6	9.0	6.0
Japan	0.4	0.6	5.0	8.2	5.0	4.7
Belgium*	2.9	3.0	3.1	3.9	3.4	3.4
Portugal*	1.0	1.5	1.2	1.9	2.2	2.1
South Korea	0.6	0.5	8.7	6.7	6.0	2.0
Finland	1.4	1.6	1.6	1.8	1.5	1.6
Austria	0.6	0.7	0.9	0.8	0.8	1.6
Greece	1.0	0.8	0.7	0.7	0.9	0.9
Switzerland	0.6	0.9	0.9	1.1	0.7	0.8
Sweden	0.7	0.8	0.8	0.6	0.6	0.8
Denmark*	0.7	0.7	0.9	0.7	0.6	0.6
Ireland*	0.3	0.3	0.5	1.4	0.7	0.3
Norway	0.2	0.2		0.1	0.1	0.2

Source FoodNews, National Statistics

*1993 Estimates

Japanese figures in litres

ANNEX:
EU GRADES & STANDARDS
FOR SELECTED PRODUCTS

COMMON STANDARDS OF QUALITY FOR ASPARAGUS

REGULATION 454/92

PRODUCE

I DEFINITION OF PRODUCE

This standard applies to shoots of the varieties (cultivars) grown from *Asparagus officinalis* L. to be supplied fresh to the consumer, asparagus for industrial processing being excluded

Asparagus shooters are classified into four groups according to colour

- 1 White asparagus,
- 2 violet asparagus having tips of a colour between pink and violet or purple and a part of the shoot white,
- 3 violet/green asparagus, part of which is of violet and green colouring
- 4 green asparagus having tips and most of the shoot green

This standard does not apply to green and violet/green asparagus of less than 6 mm diameter and white and violet asparagus of less than 8 mm diameter packed in uniform bundles or unit packages

QUALITY

II PROVISIONS CONCERNING QUALITY

The purpose of this standard is to define the quality requirements for asparagus after preparation and packaging

A MINIMUM REQUIREMENTS

In all classes, subject to the special provisions for each class and the tolerances allowed the shoots must be

- intact
- sound produce affected by rotting or deterioration such as to make it unfit for consumption is excluded,
- free from damage caused by unsuitable washing (the shoots may have been washed but not soaked)
- clean practically free of any visible foreign matter
- fresh in appearance and fresh smelling
- practically free from pests
- free from damage caused by rodents or insects,
- practically unbruised,
- free of abnormal external moisture i.e. adequately "dried" if they have been washed or cooled with cold water
- free of any foreign smell and/or taste

The cut at the base of the shoots must be as clean as possible

In addition shoots must be neither hollow split peeled nor broken Small cracks which have appeared after harvesting are, however, allowed, so long as they do not exceed the limits laid down in IV A 'Quality tolerances'

The condition of the asparagus must be such as to enable them

- to withstand transport and handling, and
- to arrive in satisfactory condition at the place of destination

B CLASSIFICATION

Asparagus is graded into three classes defined below

'Extra' class

Shoots in this class must be of superior quality, very well formed and practically straight Having regard to the normal characteristics of the group to which they belong, their tips must be very compact

Only a few very slight traces of rust on the shoot, removable by normal peeling by the customer, are allowed

For the 'white' asparagus group the tips and shoots must be white only a faint pink tint is allowed on the shoots

Green asparagus must be totally green

No traces of woodiness are allowed for the shoots in this class

The cut at the base of the shoots must be as square as possible However, to improve presentation when the asparagus is packed in bundles those on the outside may be slightly bevelled, so long as the bevelling does not exceed 1 cm

Class I

Shoots in this class must be of good quality and well formed They may be slightly curved Having regard to the normal characteristics of the group to which they belong, their tips must be compact

Slight traces of rust removable by normal peeling by the consumer are allowed

For the 'white' asparagus group a faint pink tint may appear on the tips and the shoots

Green asparagus must at least be green for 80% of the length

In the 'white' asparagus group, no woody shoots are allowed For the other groups, a trace of woodiness on the lower part is permissible provided this woodiness disappears by normal peeling by the consumer

The cut at the base of the shoots must be as square as possible

Class II

This class includes shoots which do not qualify for inclusion in the higher classes but satisfy the minimum requirements specified above

Compared with Class I shoots may be less well formed more curved and having regard to the normal characteristics of the group to which they belong, their tips may be slightly open

Traces of rust removable by normal peeling by the consumer are allowed

The tips of 'white' asparagus may have a colouration including a green tint

The tips of 'violet' asparagus may have a slight green tint

Green asparagus must at least be green for 60% of the length

Shoots may be slightly woody

The cut at the base of the shoots may be slightly oblique

SIZING

III PROVISIONS CONCERNING SIZING

Size is determined by the length and diameter of the shoot

A SIZING BY LENGTH

- above 17 cm for long asparagus,
- 12 to 17 cm for short asparagus,
- 12 to 22 cm for Class II asparagus arranged, but not bundled in the packages,
- under 12 cm for asparagus tips

The maximum length allowed for white and violet asparagus is 22 cm and for green and violet/green asparagus 27 cm

B SIZING BY DIAMETER

The diameter of shoots shall be measured at the mid point of their length

Quality	Colour group	Minimum diameter	Sizing	
'Extra'	White and violet	12 mm	12 to 16 mm	16 mm and over with a maximum variation of 8 mm in any single package or bundle
	Violet/green and green	10 mm	10 to 16 mm	
I	White and violet	10 mm	10 to 16 mm	16 mm and over with a maximum variation of 10 mm in any single package or bundle
	Violet/green and green	6 mm	6 to 12 mm	12 mm and over with a maximum variation of 8 mm in any single package or bundle
II	White and Violet	8 mm	No provisions as to uniformity prescribed	
	Violet/green and green	6 mm		

The minimum diameter and sizing shall be

TOLERANCES

IV PROVISIONS CONCERNING TOLERANCES

The following tolerances in respect of quality and size are allowed for produce not satisfying the requirements for the class indicated in each package

A QUALITY TOLERANCES

'Extra' class

5% by number or weight of shoots not satisfying the requirements for the class, but conforming to those of Class I, or exceptionally coming within the tolerances for that class or having slight unsecured cracks appearing after harvesting

Class I

10% by number or weight of shoots not satisfying the requirements for the class, but conforming to those of Class II or exceptionally coming within the tolerances for that class or having slight unsecured cracks appearing after harvesting

Class II

10 % by number or weight of shoots satisfying neither the requirements for the class nor the minimum requirements, but excluding shoots affected by rotting, or any other deterioration rendering them unfit for consumption

In addition to the above 10%, an additional tolerance of 10% by number or weight can be allowed for hollow shoots or shoots showing very slight cracks due to washing. In no case can there be more than 15% hollow shoots in each package or bundle

B SIZE TOLERANCES

For all classes

10% number or weight of shoots not corresponding to the size indicated and deviating from the specified limits of length with a maximum deviation of 1 cm in length and 2 mm in diameter

PRESENTATION

V PROVISIONS CONCERNING PRESENTATION

A UNIFORMITY

The contents of each package or each bundle in the same package should be uniform and comprise only asparagus of the same origin, quality, colour group and size (where sizing is compulsory)

Nevertheless, with respect to colour, shoots of a different colour group may be allowed within the following limits

- a) white asparagus 10% by number or weight of violet asparagus in class 'Extra' and 'I' and 15% in class II,
- b) violet green and violet/green asparagus 10% by number or weight of another colour group

In the case of class 'II' a mixture of white and violet asparagus is allowed provided it is appropriately marked

The visible part of the contents of each unit package or bundle must be representative of the entire contents

B PRESENTATION

The asparagus may be presented in the following ways

(i) In bundles firmly bound

Shoots on the outside of each bundle must correspond in appearance and size with the average of the whole bundle. Shoots packed in this way must be of uniform length

Bundles must be arranged evenly in the package, each bundle may be protected by paper

In any one package, bundles must be of the same weight and length

(ii) Arranged, but not bundled in the package

C PACKAGING

The asparagus must be packed in such a way as to ensure adequate protection for the produce

The materials used inside the package must be new, clean and of a quality such as to avoid causing any external or internal damage to the produce. The use of materials and particularly of paper or stamps bearing trade specifications is allowed provided that the printing or labelling has been done with a non-toxic ink or glue

The package must be free from any foreign matter

MARKING

VI PROVISIONS CONCERNING MARKING

Each package must bear the following particulars in letters grouped on the same side, legibly and indelibly marked and visible from the outside

A IDENTIFICATION

Packer
and/or
Dispatcher

}

Name and address or
officially issued
or accepted code

B NATURE OF PRODUCE

'Asparagus' followed by the indication 'white', 'green', 'violet', or 'violet/green' if the contents of the package are not visible from the outside and, where appropriate, the indication 'short', 'tips' or 'mixture white and violet'

C ORIGIN OF PRODUCE

Country of origin and optionally, district where grown, or national regional or local place name

D COMMERCIAL SPECIFICATIONS

- Class,
- Size expressed
 - a) for asparagus subject to the uniformity rules, as minimum and maximum diameters,
 - b) for asparagus not subject to the uniformity rules as minimum diameter followed by maximum diameter or the words 'and over'
- For asparagus packed in bundles or unit packages, the number of bundles or the number of unit packages

E OFFICIAL CONTROL MARK (OPTIONAL)

COMMON STANDARDS OF QUALITY FOR BEANS

Regulation 58/62 Annex I/4

PRODUCE

I DEFINITION OF PRODUCE

This standard applies to beans grown from *Phaseolus vulgaris L.* and *Phaseolus coccineus L.* to be supplied fresh to the consumer, beans for shelling or processing being excluded
Quality

II PROVISIONS CONCERNING QUALITY

A GENERAL

The purpose of the standard is to define the quality requirements for beans at the dispatching stage after preparation and packaging

B MINIMUM REQUIREMENTS

- i) the beans must be
 - intact,
 - sound (subject to the special provisions for each class),
 - of fresh appearance
 - clean, in particular free from any impurity or any visible trace of the chemicals used,
 - free from foreign smell or taste,
 - free from all abnormal external moisture
- ii) The beans must be of sufficient size. The state of the produce must be such as to enable it to withstand transport and handling, to be kept in good condition until it reaches its place of destination and to meet market requirements there

C CLASSIFICATION

- a) Fine beans ('needle beans')

Fine beans are graded in three quality classes which are defined below

'Extra' class

Beans in this class must be of superlative quality and of the shape, size and colour characteristic of the variety. They must be

- turgescient,
- very tender,
- seedless and stringless,
- free from any defect

Class I

Beans in this class must be of good quality. They must be turgescient and tender, and must have the characteristic shape, size and colour of the variety concerned

Slight discoloration, small seeds and short soft strings are permissible

Class II

This class comprises fine beans of marketable quality which do not qualify for inclusion in the higher classes but satisfy the minimum requirements specified above

Such beans must be reasonably tender, the seeds must not be too large

They may have minor superficial blemishes

b) Beans, other

Beans, other are graded in two quality classes which are defined below

Class I

Produce in this class must be of good quality and must have the shape, size and colouring characteristic of the variety

Such beans must be

- in such a condition that they can be easily broken by hand (this applies only to beans of the 'mange tout' variety)
- young and tender
- stringless except in the case of beans for slicing,
- practically free from spots caused by the wind and free from any other blemish

The seeds must be small and tender for the variety concerned pods must be closed

Class II

This class comprises beans of marketable quality which do not qualify for inclusion in the higher class but satisfy the minimum requirements specified above Beans in this class must be

- reasonably young and tender

The seeds may be somewhat larger than in Class I but must nevertheless be tender for the variety concerned

Traces of disease or frost nip are prohibited However minor superficial blemishes and slight spots caused by the wind are allowed Beans with strings are permitted

SIZING

III PROVISIONS CONCERNING SIZING

Sizing is required only in the case of fine beans Sizing is determined by the maximum diameter of the pod in accordance with the following classification

- very fine width of the pod not exceeding 6 mm,
- fine width of the pod not exceeding 9 mm
- average width of the pod exceeding 9 mm,

'Fine' and 'average' beans may not be placed in the 'Extra' class

'Average' beans may not be placed in Class I

TOLERANCES

IV TOLERANCES

Tolerances in respect of quality and size are allowed in each package for substandard produce

A QUALITY TOLERANCES

'Extra' class 5% by weight of beans not satisfying the requirements of the class but meeting the requirements of the Class immediately below (Class I)

Class I

10% by weight of beans not satisfying the requirements of the class but meeting the requirements of the class immediately below (Class II), of these, a maximum of 5% may have strings in the case of varieties which should be stringless

Class II

10% by weight of beans not satisfying the minimum requirements but fit for human consumption

In no circumstances shall tolerances include produce affected by *Colletotrichum* (*Gloeosporium*) *Lindemuthianum* blight

B SIZE TOLERANCES (FINE BEANS)

For all classes 10% by weight of the produce in each package not conforming to the standard size

C CUMULATIVE TOLERANCES (FINE BEANS)

In no circumstances may quality and size tolerances together exceed

- 10% in the 'Extra' Class,
- 15% in Classes I and II

PRESENTATION

V PROVISIONS CONCERNING PRESENTATION

A UNIFORMITY

The contents of each package must be uniform and contain only beans of the same origin, variety and quality

B PACKAGING

Packaging must be of such a kind as to ensure that the produce is properly protected

Any paper or other material used inside the package must be new and harmless to human food. When printed matter is used, the printing must be on the outside only so as not to come into contact with the produce. The produce when packaged must be free from any foreign bodies

MARKING

VI PROVISIONS CONCERNING MARKING

Each package must bear the following particulars legibly and indelibly marked on the outside

A IDENTIFICATION

Packer
Dispatcher

}

Name and address or code mark

B NATURE OF PRODUCE

Indication of type ('French beans' 'runner beans', 'fine beans') or variety (where the contents of the package are not visible from the outside)

C ORIGIN OF PRODUCE

District of origin, or national, regional or local trade name

D COMMERCIAL SPECIFICATIONS

Class,

Sizing (optional) indicated by 'very fine', 'fine', 'average' for fine beans

E OFFICIAL CONTROL MARK (OPTIONAL)

COMMON STANDARDS OF QUALITY FOR TABLE GRAPES

Regulation 1730/87 Annex as amended by regulation 93/91

PRODUCE

I DEFINITION OF PRODUCE

This standard applies to table grapes, being fruit grown from varieties (cultivars) of *Vitis Vinifera L.* to be supplied fresh to the consumer and belonging to the varieties set forth in the annexed list table grapes for industrial processing being excluded

QUALITY

II PROVISIONS CONCERNING QUALITY

The purpose of the standard is to define the quality requirements for table grapes after preparation and packaging

A MINIMUM REQUIREMENTS

In all classes, subject to the special provisions for each class and the tolerances allowed, bunches and berries must be

- sound, produce affected by rotting or deterioration such as to make it unfit for consumption is excluded,
- clean, practically free of any visible foreign matter,
- practically free from damage by pests or diseases,
- free from all visible traces of mould,
- free of abnormal external moisture,
- free of foreign smell and/or taste

In addition, berries must be

- intact,
- well formed
- normally developed

Pigmentation due to sun is not a defect

Bunches must have been carefully picked

The grapes must be sufficiently developed and display satisfactory ripeness. The development and condition of the grapes must be such as to enable them

- to withstand transport and handling, and
- to arrive in satisfactory condition at the place of destination

B CLASSIFICATION

The table grapes are classified into four classes defined below

'Extra' class

Table grapes in this class must be of superior quality

In shape, development and colouring the bunches must be typical of the variety, allowing for the district in which they are grown, and have no defects

Berries must be firm firmly attached, evenly spaced along the stalk and have their bloom virtually intact

Class I

Table grapes in this class must be of good quality

In shape, development and colouring the bunches must be typical of the variety, allowing for the district in which they are grown

Berries must be firm, firmly attached and, as far as possible have their bloom virtually intact

They may, however, be less evenly spaced along the stalk than in the 'Extra' class

The following slight defects however may be allowed provided that these do not affect the general appearance of the produce and the keeping quality of the package

- slight defects of shape,
- slight defect in colouring
- very slight sun scorch affecting the skin only

Class II

This class includes table grapes which do not qualify for inclusion in the higher class but satisfy the minimum requirements laid down above

The bunches may show slight defects in shape, development and colouring, provided these do not impair the essential characteristics of the variety, allowing for the district in which they are grown

The berries must be sufficiently firm and sufficiently attached, and, where possible, still have their bloom They may be less evenly spaced along the stalk than in Class I The following defects are allowed

- defects of shape,
- defects in colouring,
- slight sun scorch affecting the skin only,
- slight bruising

Class III ⁽¹⁾

This class includes table grapes which do not qualify for inclusion in a higher class but satisfy the minimum requirements for Class II

The bunches may include some abnormally developed berries

"Thin" bunches, i.e. bunches in which the grapes are abnormally far apart on the stalk, and "thick" bunches with the grapes too close together, shall be accepted in this class

⁽¹⁾ Additional class within the meaning of Article 2(1) of Regulation No 1035/72/EEC Use of this quality class or some of its specifications is subject to a decision to be taken under Article 4(1) of the same Regulation

SIZING

III PROVISIONS CONCERNING SIZING

Sizing is determined by the weight of bunches

The following minimum weight requirements per bunch are laid down for hothouse grapes and for large-berry and small berry grapes in open field

Class	Hothouse varieties	Open field varieties	
		Large-berry	Small-berry
'Extra'	300	200	150
I	250	150	100
II	150	100	75
III	75	75	75

A classified list of hothouse varieties and open group large berry and small berry varieties appears in the Annex to this standard

TOLERANCES

IV PROVISIONS CONCERNING TOLERANCES

The following tolerances in respect of quality and size are allowed in each package for produce not satisfying the requirements of the class indicated

A QUALITY TOLERANCES

'Extra' class

5% by weight of bunches not satisfying the requirements for the class, but meeting those for Class I or, exceptionally, coming within the tolerances for that class

Class I

10% by weight of bunches not satisfying the requirements for the class but meeting those for Class II or, exceptionally, coming within the tolerances for that class

Class II

10% by weight of bunches satisfying neither the requirements for the class nor the minimum requirements with the exception of produce affected by rotting or any other deterioration rendering it unfit for consumption

Class III

15% by weight of bunches satisfying neither the requirements for the class nor the minimum requirements with the exception of produce affected by rotting or any other deterioration rendering it unfit for consumption

B SIZE TOLERANCES

'Extra' Class Classes I and II

10% by weight of bunches not satisfying the size requirements for the class, but meeting the size requirements for the class immediately below

Class III

15% by weight of bunches weighing less than 75 grams

PRESENTATION

V PROVISIONS CONCERNING PRESENTATION

A UNIFORMITY

The contents of each package must be uniform, each package must contain bunches of the same origin, variety class and degree of ripeness

In the case of the 'Extra' Class the bunches must be of more or less identical size and colouring

In the case of Class III uniformity of origin and variety only is required

The visible part of the contents of each package must be representative of the entire contents

B PACKAGING

The table grapes must be packed in such a way that the produce is suitably protected. In the case of the 'Extra' Class, the bunches must be packed in a single layer

The materials used inside the package must be new, clean and of a quality such as to avoid causing any external or internal damage to the produce. The use of materials and particularly of paper or stamps bearing trade specifications is allowed provided that the printing or labelling has been done with a non toxic ink or glue

Packages must be free from any foreign matter although a fragment of vine shoot no more than 5 cm in length may be left on the stem of the bunch as a form of special presentation

MARKING

VI PROVISIONS CONCERNING MARKING

Each package must bear the following particulars in letters grouped on the same side, legibly and indelibly marked and visible from the outside

A IDENTIFICATION

Packer
and/or
Despatcher

}

Name and address
or officially issued
or accepted code mark

B NATURE OF PRODUCE

- "Table Grapes", if the contents are not visible from the outside
- Name of the variety

C ORIGIN OF PRODUCE

- Country of origin and, optionally, district where grown or national regional or local place name

D COMMERCIAL SPECIFICATIONS

- Class

E OFFICIAL CONTROL MARK

(Optional)

ANNEX

LISTS OF GRAPE VARIETIES

The lists in this Annex set out the varieties that may be marketed in the Community. Those preceded by an asterisk (*) are produced in the Community.

The names given in brackets are synonyms that may equally be used on the packaging.

1 GRAPES GROWN UNDER GLASS

- * Alphonse Lavellee (Garnacha roya - Ribier)
- * Black Alicante (Granacke Granaxa Grandaxa)
- * Cardinal
- * Canon Hall (Canon Hall Muscat)
- * Colman (Gros Colman) (cf 2) — Gros Colman)
- * Frankenthal (cf 2a) — Schiava Grossa)
- * Golden Champion (cf 2a — Baresana)
- * Gradisca (Gradiska)
- * Gros Maroc
- * Leopold III
- * Muscat d'Alexandrie (cf 2a)
- * Muscat d'Hambourg (cf 2b Moscato d'Amburgo)
- * Prof Aberson
- * Royal

2 OPEN-GROWN GRAPES

A) LARGE BERRY VARIETIES

- * Aledo (New Cross Real)
- * Alphonse Lavallee (cf 1)
Amasya Siyahi
- * Angela (Angiola)
- * Baresana (Duraca — Golden Champion — Lattuario bianco — Latuario bianco — Littuario bianco — Turchesa — Turchesca — Uva di Bisceglie — Uva rosa — Uva Turca — Varesana)
Barlinka
Bicane (Napoleon — Perle Imperiale — Weisser Damaszaner — Zanta)
Bien Donne
- * Blanc d'Edessa (Edessis — Amasya)
Calmeria
- * Cardinal
Coarna noir
- * Dabouki (Barbaroui — Khalili — Salti)
- * Danam
Dan Ben Hannah (Black Emperor)
- * Danlas
- * Datal
- * Diagalves (Dependura — Formosa — Pendura — Villaneuva)
Dimiat (Damiat — Zoumiatico)
Dominga (Gloria — Murciana blanca — Uva verde de Alhama)
- * Dona Maria
- * Emperor (Emperador — Genova — Red Emperador — Red Emperor)
Erenkoy Beyazi
- * Ferral
- * Flame Tokay
Gemre (Pembe Gemre)
Golden Hill
Gros Colman (Colman Fruher Walscher — Gros Colmar — Triomphe)
Honusu
- * Ignea (I Pirovano 185)
- * Imperial Napoleon (Dona Mariana — Mariana)
- * Italia (Dona Sofia — Ideal — Italian muscat — I Pirovano 65 — Moscatel Italiano)
Kozak Beyazi
- * Lival
- * Matilde

2 OPEN-GROWN GRAPES (CONT)

A) LARGE BERRY VARIETIES (CONT)

- * Michele Paleri
- * Muscat d'Alexandrie (Moscatellone — Moscatel Romano — Muscat Gordo bianco — Muscat de Grano Gordo — Muscat d'Espagne — Muscat Romano — Muscat blanc d'Alexandrie — Muskaat van Alexandrie — Salamanna — Seramanna — White Hanepoot — Witte Muskaat Zibibbo) — Muscat Madame Mathiasz (Madam Jean Mathiaz)
- * Ohanes (Almeria — Blanca Legitima — Ohanez — Uva de Almeiria — Uva di Almeiria — Uva de Embarque — Uva del Barco)
- * Olivette blanche (Bridal — Olivette de Montpellier — Olivette de Vendemian)
- * Olivette noire (Olivetta nera — Olivetta Vibonese — Cornichon — Preta — Purple Cornichon)
Pannonia (Pannonia Gold)
Peck
- * Perlona (I Pirovano 54)
- * Phraoula (Fraoula — Phraoula Kokkini — Phraoula radini)
- * Planta Nova (Coma — Tardana — Tortazon)
Prune de Cazouls
- * Ragol (Ahmeur bou Ahmeur — Angelina — Argelina — Imperial roja — Uva de Ragol)
- * Regina (Afouz Ali — afis Ali — Aleppo — Bolgar — Dattier de Beyrouth — Dattero di Negroponte — Galleta — Hafis Ali — Inzolia imperiale — Karaboumou — Kararubun — Mennavacca bianca — Parchitana — Pergolona — Regina di Puglia — Reine Rasaki — Rosaki blanc — Rossetti — Uva Real — Waltham cross)
- * Regina nera (Mennavacca nera — Lattuario nero — Olivettona — Regina negra — Rosaki noir)
- * Ribol
Salba
- * Schiava grossa (Black Hambourg — Frankenthal — Gross Vernatsch — Imperator — Lamper — Schiavone Trollinger)
Superior Seedless
Tchaouch (Chaouch — Parc de Versailles — Tsaoussi)
Verico

B) SMALL BERRY VARIETIES

- * Admirable de Courtiller (admirable — Csiri Csuri)
- * Albillo (Acerba — Albuella — Blanco Ribera — Cagalon)
- * Angelo Pirovano (I Pirovano 2)
- * Annamaria (I Ubizzoni 4)
Baltali
- * Beba (Beba de los Santos — Eva)
- * Catalanesca (Catalanesa — Catalana — Uva Catalana)
- * Chasselas blanc (Chasselas dore — Fendant — Franceset — Franceseta — Gutedel — Krachtgutedel — White van der Laan)

2 OPEN-GROWN GRAPES (CONT)

B) SMALL BERRY VARIETIES (CONT)

- Chassalas rouge
Chelva (Chelva de Cebreros — Guarena — Mantuo — Villaneuva)
- * Ciminnita (Cipro bianco)
 - * Clairette (Blanquette — Malvoisie — Uva de Jijona)
 - * Colombana bianca (Verdea — Colombana de Peccioli)
 - * Dehlo
 - * Delizia di Vaprio (I Pirovano 46 A)
 - * Flame seedless (Red Flame)
 - * Gros Vert (Abbondanza — St Jeannet — Trionfo dell'Esposizione — Verdal — Trionfo di Gerusalemme)
 - * Jaoumet (Madeleine de St Jacques — Saint Jacques)
 - * Madeleine (Angevine — Angevine Oberlin — Madeleine Angevine Oberlin — Republican)
 - * Mireille
 - * Molinera (Besgano — Castiza — Molinera gorda)
 - * Moscata d'Adda (Muscat d'Adda)
 - * Moscato d'Amburgo (Black Muscat — Hambro — Hamburg — Hamburski Misket — Muscat d'Hambourg — Moscato Preto)
 - * Moscato di Terracina (Moscato di Maccarese)
 - * Oellade (Black Malvoisie — Cinsaut — Cinsault — Ottavianello — Sinso)
 - * Panse precoce (Bianco di Foster — Foster's white — Panse blanche — Sicilien)
 - * Perla di Csaba (Cabski Biser — Julski muskat — Muscat Julius — Perle de Csaba)
 - * Perlaut
 - * Perlette
 - * Pizzutello bianco (Aetonychí aspro — Coretto — Cornichon blanc — Rish Baba — Sperone di gallo — Teta di vacca)
- Precoce de Malingre
- * Primus (I Pirovano 7)
 - * Prunesta (Bermestia nera — Pergola rossa — Pergolese di Tivoli)
 - * Regina dei Vigneti (Konigin der Weingarten — Muskat Szoloskertek Kizalyneja — Szoloskertek Kizalyneh — Rasaki ourgarias — Regina Viloz — Reina de las Vinas — Reine des Vignes — I Mathiasz 140 — Queen of the Vineyards)
 - * Servant (Servan — Servant de Spagna)
 - * Sideritis (Sidiritis)
 - * Sultanines (Bidaneh — Kishmich — Kis Mis — Sultan — sultana — Sultani — Cekirdesksiz — Sultanina bianca — Sultaniye — Thomson seedless and mutations)
 - * Valenci blanc (Valensi — Valency — Panse blanche)
 - * Valenci noir (Planta Muja — Rucial de Mula Valenci negro)
- Yapincak

COMMON QUALITY STANDARDS FOR CUT FLOWERS

Regulation 316/68 Amended by Regulations 801/72 802/71 1155/76 2991/78 309/79 Annex 1

PRODUCE

I DEFINITION OF PRODUCE

These standards shall apply to fresh cut flowers and flower buds of a kind suitable for bouquets or for ornamental purposes, falling within subheading No 06 03A of the Common Customs Tariff

QUALITY

II QUALITY REQUIREMENTS

A MINIMUM REQUIREMENTS

Produce must have been carefully cut or picked, according to the species, and have reached an appropriate stage of growth

B CLASSIFICATION

Class I

Produce in this class must be of good quality. It must have the characteristics of the species and, where appropriate, of the variety (cultivar)

All parts of the cut flowers must be

whole,

fresh,

free of animal or vegetable parasites and from damage caused by such

fresh of residues of pesticides and other extraneous matter affecting the appearance

unbruised,

free of defects of development for carnations a split calyx is not considered a defect of development

However, in respect of American carnations, flowers with a split calyx must be ringed, put up separately in uniform lots and the packages marked accordingly

The stems must, according to species and variety (cultivars) be rigid and strong enough to support the flower(s)

Class II

This class shall include all produce which does not meet all the requirements of Class I

All part of the flowers must be

whole,

fresh,

free of animal parasites,

The flowers may, however, have the following defects

slight malformation,
 slight bruising,
 slight damage caused, for example, by disease or by animal parasites,
 weaker less rigid stems
 small marks caused by treatment with pesticides

The permitted defects must not impair the keeping quality, appearance or utility of the products
Extra class

Produce which qualifies for Class I without the aid of any quality tolerance may be marked 'Extra'
 However, this classification may not be used for American carnations with a split calyx

SPECIAL PROVISIONS

III SPECIAL PROVISIONS

The special provisions for certain types of flowers set out in Annex IA shall override the provisions of the Annex

SIZING

IV SIZING

For cut flowers, sizing must comply at least with the following scale

Code	Length
0	less than 5 centimeters of flowers marketed without stems
5	5 10 centimetres
10	10 15 centimetres
15	15 20 centimetres
20	20 30 centimetres
30	30 40 centimetres
40	40 50 centimetres
50	50 60 centimetres
60	60 80 centimetres
80	80-100 centimetres
100	100 120 centimetres
120	more than 120 centimetres

These lengths include the flower head

The difference per unit of presentation (bunch bouquet, box and the like) between the maximum and minimum lengths of the flowers in the unit may not exceed

- 2.5 centimetres for flowers in codes 15 and below,
- 5.0 centimetres for flowers in code 20 (inclusive) to 50 (inclusive),
- 10.0 centimetres for flowers in codes 60 and above

This difference may be doubled for flowers presented in fan shape For chrysanthemums with large

flowers presented in fan shape this difference may go up to 20 centimetres for flowers in codes 20 and 50 (inclusive)

The size scale and the uniform lengths set out above are applicable to mimosa

The minimum length for branches of mimosa shall be fixed at 20 centimetres. However, bundles and bouquets composed exclusively of small sprigs of a length less than 20 centimetres may be permitted subject to the words 'short stem' or an equivalent term being marked on the packages

TOLERANCES

V QUALITY TOLERANCES

Quality tolerances shall be permitted in each unit of presentation as follows

Class I

5% of the cut flowers may have slight defects, on condition that the uniformity of the flowers in a unit of presentation is not affected

Class II

10% of the cut flowers may vary from the requirements of the class. Half of this percentage may have been attacked by parasites of animal or vegetable origin

The defects in question must not impair the utility of the products

PRESENTATION

VI PACKAGING AND PRESENTATION

A PRESENTATION

A unit of presentation (bunch, bouquet, box and the like) must consist of 5, 10 or a multiple of 10 pieces

However, this rule does not apply to

- (a) flowers normally sold singly,
- (b) flowers normally sold by weight
- (c) flowers for which seller and buyer agree expressly to derogate from the provisions concerning the number of flowers in a unit of Presentation. This derogation is admissible solely for transactions outside wholesale markets on condition that
 - the goods are the subject of a direct sale based on a fixed selling price per unit of presentation at wholesale level to a retailer or a person acting on behalf of a retailer,
 - the goods are accompanied by a bill, delivery note or similar document showing the above mentioned selling price,
 - the unit of presentation is in the packaging required by the buyer for the ultimate purchaser. This packaging must be such as to permit identification of the goods

Member States are authorised in respect of exports of cut flowers to the United States of America and Canada to take measures derogating from the provisions of this section

B UNIFORMITY

Each unit of presentation (bunch, bouquet, box and the like), must contain flowers of the same genus, species or variety (cultivar) and of the same quality class, and must have reached the same stage of development

Mixtures of flowers or mixtures of flowers with foliage of different genus, species or variety (cultivar) are however permitted so long as products of the same quality class are used and that they are

appropriately marked

C PACKAGING

Packaging must protect the produce adequately Paper or other materials in direct contact with the cut flowers must be new

MARKING

VI MARKING

The following particulars must accompany the goods

A IDENTIFICATION

Despatcher of

Packer

}

Name and address or
code mark

B NATURE OF PRODUCE

Genus,

Species or variety (cultivar) or colour of flowers

Where appropriate the word mixture (or equivalent term)

C ORIGIN OF PRODUCE (OPTIONAL)

Region of origin, or national, regional or local name

D COMMERCIAL SPECIFICATIONS

Class,

Size (length code) or minimum and maximum lengths (optional)

Number or net weight

E OFFICIAL CONTROL MARK (OPTIONAL)

F PRESENTATION

If the number of flowers per unit of presentation does not correspond to the provisions of section VIA, packages must be marked to show the exact composition of the units of presentation contained therein

SPECIAL PROVISIONS FOR MIMOSA

Annex 1A

Mimosa must satisfy the quality requirement of Class I

However, for this flower the rigidity requirement does not apply to the upper ends of the flower stems

The base of the branches must not be too woody

Mimosa must also meet the following quality requirements

stems well furnished with flowers,

unbroken or untrimmed tips However stems with broken tips are permitted where the broken sector has a diameter of less than 2 millimetres

Mimosa may be presented in bloom or not

For mimosa in bloom, the bloom should be normal for the variety and the number of green flowering heads not yet in bloom must not exceed

60% for Floribunda

20% for other species and varieties

The flowering heads must be of normal colour unspotted and firmly fixed to the inflorescence

For mimosa which is not in bloom 80% of the flowering heads must be yellow (slightly open)

PRESENTATION

PRESENTATION

Branches of mimosa must be arranged in layers or presented in bunches of

150 grammes 250 grammes or multiples of 250 grammes

Mimosa not in bloom must be packed in small bags made of polyethylene or a similar substance

Each unit of presentation even when offered in bulk, must be of uniform composition and only contain branches of the same species and variety

MARKING

MARKING

In addition to indicating the packer or despatcher on each package the marking must include the following particulars

- the genus,
 - the species or variety (cultivar),
- the words 'in bloom' or 'not in bloom',
- where appropriate, the words 'short stemmed' or equivalent term,
- the total net weight or the number of bunches and the weight of each

UN/ECE STANDARD FFV-45

concerning the marketing and commercial quality control of

MANGOES

moving in international trade

I DEFINITION OF PRODUCE

This standard applies to mangoes of varieties (cultivars) grown from *mangifera indica L.* to be supplied fresh to the consumer mangoes for industrial processing being excluded

II PROVISION CONCERNING QUALITY

The purpose of the standard is to define quality requirements for mangoes at the export control stage after preparation and packaging

A MINIMUM REQUIREMENTS

In all classes subject to the special provisions of each class and the tolerances allowed the mangoes must be

intact

firm

fresh in appearance

sound produce affected by rotting or deterioration such as to make it unfit for consumption is excluded

clean, practically free from any visible foreign matter

free from black stains or trails which extend under the skin

free from marked bruising

practically free from pests

practically free from damage caused by pests

free from damage caused by low temperature

free from abnormal external moisture

free of any foreign smell and/or taste

Mangoes must be sufficiently developed and display satisfactory ripeness

Mangoes must be carefully picked at the stage of physiological development so as to enable them

to ensure a continuation of the ripening process until they reach the appropriate degree of ripeness corresponding to the varietal characteristics,

to withstand transport and handling and

to arrive in satisfactory condition at the place of destination

In relation to the evolution of maturing the colour may vary according to variety

B CLASSIFICATION

Mangoes are classified in three classes defined below

(i) Extra Class

Mangoes in this class must be of superior quality Shape and colouring must be characteristic of the variety

They must be free of defects with the exception of very slight superficial defects provided that these do not affect the general appearance of the produce, the quality the keeping quality and presentation in the package

(ii) Class I

Mangoes in this class must be of good quality They must be characteristic of the variety However, the following slight defects may be allowed provided that these do not affect the general appearance of the produce the quality, the keeping quality and presentation in the package

slight defects of shape,

slight defects of the skin due to rubbing or sunburn, suberized stains due to resin exudation (elongated trails included) and healed bruises not exceeding 3, 4 5 cm² for size groups A, B, C respectively

(iii) Class II

This class includes mangoes which do not qualify for inclusion in the higher classes but satisfy the minimum requirements specified above

The following defects may be allowed provided that the mangoes retain their essential characteristics as regards the quality the keeping quality and presentation

defects of shape,

defects of skin due to rubbing or sunburn suberized stains due to resin exudation (elongated trails included) and healed bruises not exceeding 5, 6, 7 cm² for size groups A B, C respectively

In classes I and II, scattered rusty lenticels, as well as yellowing of green varieties due to exposure to direct sunlight, not exceeding 40 per cent of the surface excluding necrotic stains of the yellow surface of green varieties

III PROVISIONS CONCERNING SIZING

Size is determined by the weight of the fruit ^{1/}

Mangoes are sized according to the following size groups

Size group	Weight in grams	Max Permissible Variation within the package in grams
A	200 350	75
B	351 550	100
C	551 800	125

The minimum weight of mangoes must not be less than 200g

^{1/} Australia at present determines size of mangoes on the basis of diameter and has placed its reservation on this point *ad referendum*

IV PROVISIONS CONCERNING TOLERANCES

Tolerances in respect of quality and size shall be allowed in each package for produce not satisfying the requirements for the class indicated

A QUALITY TOLERANCES

(i) Extra Class

5 per cent by number or weight of mangoes not satisfying the requirements of the class but meeting those of Class I or, exceptionally coming within the tolerances of that class

(ii) Class I

10 percent by number or weight of mangoes not satisfying the requirements of the class but meeting those of Class II or, exceptionally, coming within the tolerances of that class

(iii) Class II

10 per cent by number or weight of mangoes satisfying neither the requirements of the class nor the minimum requirements, with the exception of fruit affected by rotting, marked bruising or any other deterioration rendering it unfit for consumption

B SIZE TOLERANCES

For all classes 10 per cent by number or weight of mangoes conforming to half of the permissible difference of the related size group above or below the range specified on the package with a minimum of 180 gr for those packed in the smallest size range and a maximum of 925 gr for those in the largest size range

V PROVISIONS CONCERNING PRESENTATION

A UNIFORMITY

The contents of each package must be uniform and contain only mangoes of the same origin, variety, quality and size

The visible part of the contents of the package must be representative of the entire contents

B PACKAGING

Mangoes must be packed in such a way as to protect the produce properly

The materials used inside the package must be new, clean and of a quality such as to avoid causing any external or internal damage to the produce. The use of materials and particularly paper or stamps bearing trade specifications, is allowed provided that the printing or labelling has been done with non toxic ink or glue

Packaging must be free of all foreign matter

VI PROVISIONS CONCERNING MARKING

Each package ^{2/} must bear the following particulars, in letters grouped on the same side, legible and indelibly marked and visible from the outside

² Package units of produce pre packed for direct sale to the consumer shall not be subject to these marking provisions but shall conform to the national requirements. However the markings referred to shall in any event be shown on the transport packaging containing such package units

A IDENTIFICATION

Packer
and/or
Dispatcher



Name and address or
officially issued
or accepted code mark ^{3/}

B NATURE OF THE PRODUCE

"Mangoes if the contents are not visible from the outside
Name of variety

C ORIGIN OF THE PRODUCE

Country of origin and, optionally district where grown or national regional or local place name

D COMMERCIAL SPECIFICATIONS

Class
Size expressed as minimum and maximum weight
Size code (optional)
Number of fruit

E OFFICIAL CONTROL MARK (OPTIONAL)

Published 1988
Revised 1991

^{3/} The national legislation of a number of European countries requires the explicit declaration of the name and address

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COMMON STANDARDS OF QUALITY FOR STRAWBERRIES

REGULATION 899/87 ANNEX II

As Amended by REGULATION 3594/89 AND 1435/91

PRODUCE

I DEFINITION OF PRODUCE

This standard applies to strawberries of the varieties (Cultivars) grown from the genus *Fragaria* L. to be supplied fresh to the consumer, strawberries for industrial processing being excluded

QUALITY

II PROVISIONS CONCERNING QUALITY

The purpose of the standard is to define the quality requirements for strawberries after preparation and packaging

A MINIMUM REQUIREMENTS

In all classes, subject to the special provisions for each class and the tolerances allowed, the strawberries must be

intact, undamaged,

with the calyx and a short green unwithered stalk attached (except in the case of wood strawberries and subject to the special provision for Class III)

sound produce affected by rotting or deterioration such as to make it unfit for consumption is excluded,

practically free of any visible foreign matter,

clean, practically free of any visible foreign matter,

fresh, but not washed,

free of abnormal external moisture,

free of any foreign smell and/or taste

The strawberries must have been carefully picked

They must be sufficiently developed and display satisfactory ripeness. The development and the condition must be such as to enable them

to withstand transport and handling, and

to arrive in satisfactory condition at the place of destination

B CLASSIFICATION

Strawberries are classified into four classes, defined below

Extra class

The strawberries in this class must be of superior quality. In colouring and shape they must be typical of the variety and they must be particularly uniform and regular with respect to degree of ripeness, colour

and size⁽¹⁾ They must be bright in appearance, taking account of the characteristics of the variety, and they must be free from soil

Class I

The strawberries in this class must be of good quality They must present the characteristics of the variety They may, however, have the following defects, provided these do not impair the external appearance of the fruit or its conservation

- slight defects in shape
- presence of a small white patch

They may be less uniform in size They must be practically free from soil

Class II

This class includes strawberries which do not qualify for inclusion in the higher classes, but satisfy the minimum requirements specified above

The strawberries may show

- defects of shape, on condition that they retain the characteristics of the variety,
- a whitish patch not exceeding one fifth of the surface area of the fruit,
- slight dry bruising not likely to spread,
- slight traces of soil

Class III⁽²⁾

This class includes strawberries which do not qualify for inclusion in the higher classes, but satisfy the requirements for Class II

They may show

- slight bruising,
 - whitish or greenish patches over a total area not exceeding one third of the surface area of the fruit,
 - traces of soil, on condition that the appearance of the fruit is not too much impaired by this
- In addition, fruit with the calyx missing are permitted in this class, on condition that they have not suffered any damage Such fruit should be packed separately

SIZING

III PROVISIONS CONCERNING SIZING

Sizing is determined by the maximum diameter of the equatorial section

Strawberries must be of the following minimum sizes

'Extra' class 25mm,

Classes I and II (except for the Primelly and Gariguettes Varieties) 22 mm,
Primella and Gariguettes varieties 18 mm,

1) These uniformity requirements for the 'Extra' class may be applied a little less strictly in the case of wood strawberries

2) Additional class within the meaning of Articles 2(1) of Regulation (EEC) No 1035/72 Use of this quality class or of some of its specifications is subject to a decision to be taken under Article 4(1) of the same Regulation

Class III 15 mm

no minimum size is laid down for wood strawberries

TOLERANCES

IV PROVISIONS CONCERNING TOLERANCES

Tolerances in respect of quality and size shall be allowed in each package for produce not satisfying the requirements of the class indicated

A QUALITY TOLERANCES

Extra class

5% by number or weight of strawberries not satisfying the requirements for the class but meeting the requirements for Class I or, exceptionally, coming within the tolerances for that class. Of these 5%, not more than 2% in total may consist of spoilt fruit

Class I

10% by number or by weight of strawberries not satisfying the requirements for the class, but meeting the requirements for Class II, or, exceptionally, coming within the tolerances for that class. Of these 10%, not more than 2% in total may consist of spoilt fruit

Class II

10% by number or weight of strawberries not satisfying the requirements for the class, nor the minimum requirements, but excluding fruit affected by rotting, severe bruising or any other deterioration rendering it unfit for consumption. Of these 10%, not more than 2% in total may consist of spoilt fruit

Class III

15% by number or weight of strawberries not satisfying the requirements for the class nor the minimum requirements, but excluding fruit affected by rotting, severe bruising or any other deterioration rendering it unfit for consumption. Of these 15%, not more than 4% in total may consist of spoilt fruit

10% by number or weight of strawberries are allowed

without a calyx, in the case of fruit presented with the calyx and stalk,

with a calyx in the case of fruit presented without a calyx or stalk

B SIZE TOLERANCES

For all classes 10% by number or weight of strawberries not conforming to the minimum size

PRESENTATION

V PROVISIONS CONCERNING PRESENTATION

A UNIFORMITY

The contents of each package must be uniform and contain only strawberries of the same origin, variety and quality

For class III strawberries, only uniformity of origin is required

The visible part of the contents of each package must be representative of the entire contents

B PACKAGING

The strawberries must be packed in such a way as to ensure that they are suitably protected

The materials used inside the package must be new, clean and of a quality such as to avoid causing

any external or internal damage to the produce. The use of materials and particularly of paper or stamps bearing trade specification is allowed provided that the printing or labelling has been done with a non toxic ink or glue

Fruit in the 'Extra' Class must be particularly well presented

Packages must be free from all foreign matter

MARKING

VI PROVISIONS CONCERNING MARKING

Each package must bear the following particulars in letters grouped on the same side, legibly and indelibly marked and visible from the outside

A IDENTIFICATION

Packer
and/or
Dispatcher

}

Name and address or
officially issued or
accepted code mark

B NATURE OF PRODUCE

Strawberries if the contents are not visible from the outside,

name of the variety (optional, except for the Primella and Gariguettes varieties for which this information is compulsory)

C ORIGIN OF PRODUCE

Country of origin and, optionally district where grown or national, regional or local place name

D COMMERCIAL SPECIFICATIONS

- Class

E OFFICIAL CONTROL MARK (OPTIONAL)

GROWING OPPORTUNITIES IN HORTICULTURE

*Gokul Patnaik
Chairman - APEDA*

India is predominantly an agricultural country and agriculture represents 33% or almost one third of India's GDP - the highest proportion in the development and developing world. Almost 70% of India's population depends on agriculture and this sector also provides employment to about 64% of the work force. Undoubtedly, agriculture is the mainstay of India's economy.

The agriculture sector is also spearheading the economic development of the country. India has achieved spectacular progress in almost all fields of agricultural production. Since the mid 60's when we started tasting the first successes of what came to be called the "Green Revolution", we have not looked back. In 1968, Indian farmers harvested about 16.5 million tonnes of wheat. By 1994, this has gone up to 57 million tonnes and our warehouses are full. Similar success stories have been repeated in rice, sugarcane, cotton, poultry, milk, vegetables and also in fruits like apples, oranges and grapes. This year, we expect a quantum jump in the production of strawberries. In oilseeds, which was a matter of worry till recently, we have touched a production level of 20 million tonnes, thanks to the progress made in soyabean, sunflower, mustard and groundnut. Our agricultural production has not only kept pace with the increasing

demand at home but it has been possible for us to generate marginal surpluses for export.

As we become self-sufficient in food grains, horticulture which has so far taken a back seat in our planning, is gradually coming to the fore. It is heartening to note that the allocation for development of horticulture which, was a meager Rs 240 million in the VII 5-year plan, has been hiked up to Rs 1 billion in the VIII plan period. Although the increase looks spectacular and is indeed laudable, yet considering the vast size of the country and the enormous task ahead of us to bring up our horticulture production to the world standards, there is still room for growth.

Present Status Of Horticulture

India is the home of a wide variety of fruits, vegetables and flowers. It has become the second largest producer of fruits as well as vegetables in the world. India offers the foreign visitors fruits of the choicest delicacy and flowers of varied hues which captivate the heart. Yet India's share in the world trade of horticulture products is minuscule - less than 1%.

World fruit production is estimated at around 370 million tonnes out of which

India accounts for about 30 million tonnes (FAO Production Year Book of 1992) It has the highest production of mango and banana, estimated at approximately 10 million and 7 million tonnes respectively India also occupies 4th position in the world in production of Pineapples and 5th position in oranges Its share in production of Apples, Pears, Peaches, Plums, Grapes and Guavas is also significant

In vegetables, the world production is estimated at 456 million tonnes out of which India produces over 59 million tonnes It occupies 2nd position amongst all countries of the world in production of onion, 3rd in production of cauliflower and cabbage account for 12.6% and 6.3% respectively of the total world production

In flowers, although India is reported to have over 34,000 Ha of land under cultivation, cost of the flowers grown are used for domestic consumption like offerings made to Gods and Goddesses and use in personal adornments We do not grow much of flowers with long stems and shelf life such as are in demand in the affluent countries As such, our share in the world trade of flowers, which has reached a staggering proportion of over \$ 550 million, is insignificant

The low performance of the country in export of horticulture produce is attributable to a variety of reasons Lack of infrastructural facilities which results in heavy post-harvest losses, coupled with low productivity and high prices of raw materials makes our exports uncompetitive in the international market. In the absence of adequate processing facilities, the grower is not

assured of the offtake of his produce and is quite often left to the mercy of market forces The constraints of air cargo space and high air freight rates compared to other countries also act as impediments to exports Other inhibiting factors are lack of adequate export promotion and market development efforts, existing laws and land ceiling regulations and high cost of inputs

At present, our exports also suffer from over-dependence on a few products viz onions and okra amongst vegetables and mango in fruits This makes us vulnerable to changes in the international trading environment There is an urgent need to widen the base and have a larger basket of exportable products

Indian exporters have enjoyed traditional strengths in a few major markets only due to a variety of factors including geographical location and socio-cultural affinity Over 90% of our exports in fruits and vegetables and processed horticultural products go to West Asia and East European markets While we should continue our efforts to maintain a major presence in these markets, and improve our market share, if possible, it is necessary to diversify into new markets Recent political changes in East Europe have had a very sharp adverse impact on our export of processed food products as well as spices It is, therefore, important that we should make concerted efforts to penetrate into new markets

Post Harvest Handling

Post Harvest Handling remains one of the weakest areas of the agricultural marketing system in our country The

irony is that the country can ill afford to neglect this vital area. Storage losses in food grains are reported to be as high as 8% and the losses in fruits and vegetables have only been estimated on a very rough basis. The Group on Perishable Agricultural Commodities headed by Dr M S Swaminathan had estimated that actual post harvest losses are as high as 25-30% of the value of the produce depending on the perishability of the product. At this scale the post harvest losses in fruits and vegetables alone are estimated to be Rs 30 - 40 billion per annum.

In the case of fruits and vegetables and horticulture products, the marketing and distribution chain is mostly in the hands of private traders. These traders work on fixed margins, the losses being passed on to the consumers during days of scarcity and debited to the suppliers during the flush season. Therefore, the trading community is by and large reluctant to invest in high cost storage or post-harvest handling facilities.

A change in attitude is only possible by short circuiting the distribution chain. The increasing returns from exports of horticulture products have now made it attractive for the grower to be closer to the market. The stringent quality requirements make it imperative for the number of intermediaries handling the produce to be drastically reduced. This has given rise to growers' organisations like MAHAGRAPES and MAHAMANGO in Maharashtra to take up direct marketing of the produce or for corporate exports like ITC and Kalyani Agro to procure the material from the growers directly and handle the produce themselves from the farm gate to the

consuming centres. In both the cases, post harvest handling facilities like pre cooling units, cold storage and refrigerated transport have been set up to ensure a cold chain. This is most noticeable in places like Maharashtra where grapes and strawberries have developed into attractive export possibilities. The development has also been facilitated by technical and financial assistance from APEDA which has assisted as many as 45 pre cooling units in the last two years.

However, post harvest handling is still an area where much work needs to be done. There are technological gaps which need to be bridged. For example, we have still not developed satisfactory systems for handling tropical fruits like mangoes and lychee. Even in case of banana, where India is the largest producer in the world, refrigerated storage and transportation technology is not being commercially practiced.

In order to reduce the huge post harvest losses and to compete in the international market in an organised and effective manner, it will be necessary for us to develop the infrastructure required for handling different kinds of agricultural products, including perishables and observing the quality standards in vogue. Infrastructure would include pre and post harvest technology improvements through mechanised systems and setting up of grading and sorting units at the field levels, Pre-cooling units/cold storages should be set up both in the field as well as near the major markets and air and sea ports. Exporters/growers should also acquire and use refrigerated transport units for carrying perishables.

Cleaning, Sorting and Grading

Cleaning, Sorting and grading are probably the most fundamental processes involved in adding value to primary agricultural products. However, it assumes greater significance in a fast changing environment where we are moving towards uniform marketing standards and the world is becoming a global village. The advent of the super market, a comparatively recent phenomenon, has imparted a new urgency. The fight for limited available shelf space and the computerised inventory systems make it obligatory for the producers to clean, grade and pack their produce in a manner which is amenable to rigid quality control and bulk handling at the same time. Unfortunately in India, we are still far from adopting uniform standards and grades even for our domestic markets, which are segregated. However, demands from consumers of international market are making it more and more obligatory for the primary produce to be properly cleaned, graded and packed. There is also a shift in carrying out these operations at the user end to the supplier end. The requirements for uniform grading and packing will entail greater use of mechanical and electronic devices in these operations in future. Mechanical size and weight grading shall have to be introduced even in commodities like fruits and vegetables and devices such as electronic colour sorters will be required for export oriented units. The Agricultural Produce (Grading and Marketing) Act 1937, which provides for grading and marketing of agricultural and other produces, is inadequate and

will have to be provided with sufficient teeth

Packaging

Packaging is important and adds value to the horticultural products as it protects the produce at all stages of marketing, storage and transportation. It also eliminates the individual handling of the produce, thus accelerating the marketing process. As the consumer preference and the buying behaviour is towards a standardised and fresh looking produce, appropriate packaging can lead to high price realisation.

Fresh produce are living tissues, high in water and sugar content and diverse in terms of morphology, composition and physiology. The package design outcome is based on the requirements of the produce within the framework of the handling and marketing system.

The main cause for deterioration in fresh produce are metabolic changes, microbial growth, mechanical injury and attack by pests and diseases. Efficient packaging can increase the shelf life and visibility of the product.

Choosing the most appropriate style of package is important but it may be necessary to reach a compromise. The different products, pack sizes, strength requirements and quantities despatched by different types of transport need to be carefully assessed before deciding on the type of packaging. The need to reach destined markets, particularly, for exports and use of refrigerated transport has posed new challenges for developing appropriate packaging material.

Packaging is no more passive. The development of Modified Atmosphere Packaging (MAP) systems where the atmosphere surrounding the produce is modified to reduce oxygen concentration and increase carbon dioxide and use of ethylene absorption films and pads has led to development of active packaging which helps in increasing the shelf life of perishable products. The package itself becomes a part of the preservation process.

Although Indian packaging has improved tremendously in the last few years, we still have a long way to go to catch up with the developments elsewhere in the world.

Processing

Processing is another key area which needs to be considerably strengthened. Although India is the largest producer of fruits and vegetables (combined) in the world, it is estimated that only about 1% - 1.5% of the production is commercially processed. This figure is in sharp contrast to the figures of 30% for Ireland, 70% for Brazil and USA, 78% for Philippines and 83% for Malaysia. Obviously, we have a long way to go.

The fruit and vegetable processing industry in India is highly decentralised as a large number of units are in the cottage and the small scale sectors. At the end of 1993, 4132 units were registered under the Fruit Products Order (FPO). About 70% of these were in the cottage and household sector (estimated production less than 50 tonnes per annum). Another 17% of the units were

small scale with an estimated annual production of 50 - 250 tonnes per unit.

In most of the units in the cottage and small scale sectors, traditional methods of preservation are predominant. However, during the last few years, a few units employing state-of-the-art technologies such as vacuum concentration, aseptic packaging, freeze drying and individual quick freezing plants have come up particularly in the processing of tomatoes, mushrooms, tropical fruit juices, pulps and concentrates.

There is a heavy concentration of units in the states of Maharashtra and Karnataka. These states are followed by West Bengal, Tamil Nadu, Kerala, Andhra Pradesh, Delhi, Uttar Pradesh, Gujarat and Punjab. The growth of processing units has been guided largely by availability of infrastructural facilities and convenient markets, besides the ready availability of raw materials. However, as the structure of the industry changes and large units enter this sector, it is anticipated that production facilities will increasingly come up near the sources of raw materials.

The capacity of fruit and vegetable processing in the country has grown steadily from 0.27 million tonnes in 1980 to 1.26 million tonnes in 1993. However, the industry is plagued by gross under-utilisation of the capacity and the production is estimated at only 35-40% of the installed capacity.

A major constraint which inhibits the growth of fruits and vegetables processing industry in India currently is the non-availability of raw materials of the right quality and at globally

competitive price Most of the fruits and vegetables available in India are not grown for processing As a result the requirement of raw materials per tonne of finished product is much higher than the requirements abroad

As labour is comparatively cheap in India, the high cost of raw material is mainly attributed to the low yields The key to reducing the cost and increasing viability of agro processing in this sector would, therefore lie in increasing the productivity

The comparison of the typical Indian yields of various fruits and vegetables with the potential which can be achieved is given in Table 1

Contract Farming - A Possible Solution

The existing land laws in India impose a ceiling on the size of land holding which can be owned by any single entity As such, companies engaged in processing of vegetables and fruit crops in India do not own vast estates for captive cultivation An attempt at a possible solution to this problem has been the recent experience of contract farming introduced by Pepsi Foods and Punjab Agro for tomato cultivation, Formal contracts are entered into with each farmer in which he finds himself to supply an agreed quantity to the company at an agreed price, with penalties for default on either side In practise, however, there is less emphasis on the legal aspects of the agreement and the whole approach is extension oriented The farmers are educated on what the crops and the marketing arrangements for disposal of the crop The company

maintains a fairly elaborate extension machinery to educate farmers to procure the produce and to supply critical inputs, like seedlings, fertilizers and pesticides The crop is constantly monitored through various stages of this growth to ensure quality and productivity A somewhat similar practice is followed in the sugar and milk industries which also have the legal sanction for "bonding" within the gate area It is felt that to be successful, the fruit and vegetable processing industry in future will have to adopt the concept of contract farming which could, probably to some extent, mitigate the problem of uncertainty in the supply and quality of input raw materials Government could perhaps consider ways and means of giving contract farming a legal status in respect of the fruit and vegetable industry as is being done in the sugar and milk industries

Export Potential

India has excellent agro climatic resources for the production of wide variety of fruits and vegetables for harvesting during different seasons It is possible to generate supplies of raw crop fruits and vegetables during the long season in some regions with the possibility of processing other products such as tropical fruits during the remainder of the year It has been estimated that in such a case, the cost of production will be globally competitive and India can be a supplier of both fresh fruits and vegetables as well as processed products (including frozen products) This would, of course, need development of appropriate technologies and large scale investments in the improvement of agricultural production, processing, packaging, transport, storage

as well as marketing, but the effort would be rewarding as India could dominate world markets with high quality and low price items

APEDA had recently carried out a study to examine the competitive production prospects in India for supplying major world markets with fresh, processed, frozen and dried products for 28 fruit crops, 9 nut crops, 35 vegetable crops and 5 flower crops and plant parts, bulbs and cuttings. A number of criteria were applied to each crop in order to be able to assist its potential as a basis for developing an export market. These included the technical feasibility of enhancing production in India, profit potential, size of market and competitive aspects. On the basis of this study the following products appear to have good potential

Fruits And Nuts

Bananas - Fresh and Puree This crop is being grown very well in many areas of India close to ports, and there huge market in industrialized countries supplied almost exclusively from imports. The varieties in demand in N American, Japanese and West European markets can be readily established from tissue culture and advanced packing, storage and shipping and marketing methods adopted. Labour constitutes about 50% of production costs and labour costs increasing (or there is socio-political unrest, in most of the production areas in Latin America and the Philippines)

In addition, the establishment of a banana pulp and concentrate business is recommended as this product has a

growing use in many processed fruit items in industrialized countries

Grapes - Fresh and Processed Grapes can be grown well in several regions of India, some of them near to the ports. Fresh grapes, resins and grape juice are major market items in the industrial countries and they are imported at certain times of the year. The fresh varieties in demand, as well as juice types should be developed in areas where a counter-seasonal supply can be established. Advanced post harvest systems should also be introduced. Table grapes and _____ have a labour component of more than 40%, while juice grapes might have only 25% labour component in production costs

A grape juice industry could produce a very competitive product to supply Asian markets

Mangoes - Fresh and Processed Mangoes are grown well in many areas near the ports and India already exports both fresh fruit and a number of processed forms. The European and N American market is primarily for the varieties hayden and Tommy Atkins which are not widely grown in India. All mangoes are imported from countries with fairly inexpensive labour, which still represents 30% of production costs. With the establishment of export demanded varieties, as well as promotion of the better Indian varieties which have suitable distribution characteristics, and advanced post-harvest systems (including approved fruit fly treatments), India could dominate the world export market in fresh mangoes. Mango fruit juice exports could also be expanded if the appropriate product were available

Pineapple - Fresh and Processed

Pineapples will grow well in many areas near the ports and India already exports both fresh fruit and a number of processed forms. Good fresh market and processing varieties which grow so well in Thailand would also grow well in central and South India on volcanic soils. Various selections of the variety "smooth cayenne" dominate the fresh market in industrialized importing countries. All pineapples are imported from countries with fairly inexpensive labour, which still represents 30% to 40% production costs. With the establishment of smooth cayenne and advanced production and post harvest systems, India would dominate the world export market in fresh pineapples, the pineapple processing industry, canned and juice, should also be developed.

Cocoa Cocoa can be grown in many areas close to ports. It is highly labour intensive with a large world market, but low value for the basic commodity but a good value to finished products. If India introduced some of the finer flavoured "Cilloho" varieties from America, as well as grew high yielding "Amazonas types, together with advanced production and processing technology, the country could be high competitive in production of Cocoa and Chocolate based confectionery.

Vegetables

Tomatoes - Processed Tomatoes can be grown in many areas of India with year round harvest possible. Although labour represents only about 20% of production costs in areas of mechanized harvest, the crop has a good value and a large market. The introduction of superior new

varieties and advanced production and processing technology will allow India to become a competitive supplier to the world market of all processed tomato products and demanding processing type and long shelf life tomatoes as well as premium greenhouse tomatoes. At the same time, the varieties of tomatoes grown for the processing industry are highly suited to fresh marketing in India and certain other Asian countries and this should also be developed. There is also potential for screen house production of top quality Dutch varieties at high elevations in South India. The domestic market for fresh tomatoes should be developed simultaneously.

Sweet Corn - Fresh and Processed Corn can be grown in many areas of India with year round harvest possible. Although labour represents only about 20% of production costs in areas of mechanized harvest, the crop has a good value and a large market. The introduction of superior new varieties and advanced production, post harvest and freezing technology will allow India to become a competitive supplier to the world market of frozen and processed corn. The domestic market for fresh and processed corn should also be developed at the same time.

Cut flowers

Roses Roses can be grown in a number of regions of India with a year round harvest possible. The labour content is about 75% of production costs, the value is high and the world market is very large. The introduction of superior varieties, production and post harvest technology would enable India to supply

many world markets competitively. The domestic market should be developed at the same time.

The above list of products is not exhaustive and it is believed that among horticultural crops there are many opportunities which are worth developing for export market. Some companies have developed niche markets for some products by pursuing such opportunities in a systematic fashion. A company in Karnataka has established a profitable business in production and marketing of Gherkins in brine and is presently working with 800 small farmers around the area. Another company in Western India has established an export market for strawberries. A company in Rajasthan is engaged in production of Asparagus in

collaboration with a Dutch company, with an eye to exports while some others are pursuing the development of Jojoba oil. Dendroleum orchids are blooming in a farm near Madras with technical assistance from the Thais and marigolds are being cultivated in Tamil Nadu for the extraction of pigments. Export of products like lychee, water chestnuts, artichokes and bamboo shoots can be very profitable as they have large ethnic demand. Similarly, there is a world of opportunity in organic food products demand for which is a world of opportunity in organic food products demand for which is increasing in the eco-conscious western world. The potential is great and opportunities are many. With determined efforts, India can earn good dividends from export of horticultural products.

Table 1

Yield and Price Data

(tonnes/Ha)

Sl No	Item	Typical Indian Yield	Indian Potential Yield
1	Potato	12	70
2	Onion	10	30
3	Tomato	15	60
4	Cauliflower	8	25
5	Pineapple	10	80

OPPORTUNITIES FOR FLORICULTURAL DEVELOPMENT IN INDIA

Dr Manmohan Attavar

Floriculture trade is one of the most rapidly expanding and dynamic enterprises in today's world. Our love for flowers and plants is the driving force for the US\$ 40 billion global trade of flowers and ornamentals. The transformation of the floriculture industry from being merely domestic into global, has opened up opportunities for multinational collaborations in developing countries in the third world. Hence there is a significant increase in competition for floriculture products in the international markets.

Global Trend of Cutflower Production

There is no doubt that the world movement of cutflowers and potted plants is fast increasing, but because of currency fluctuations it is difficult to measure the absolute rate of growth. There are more than 140 countries involved in the cultivation of floricultural crops covering approximately 56,000 hectares. The global acreage under these crops is also steadily increasing. The percentage of protected cultivation remained the same between 1985 and 1989. About 25% of the global acreage of cutflowers is under cover, either plastic or glasshouse. While the traditionally recognized floriculture production centres such as USA, the Netherlands and Mexico each accounting for 10% of the acreage,

Japan alone has 25% of the acreage under floriculture crops. Additional production centres have also emerged in developing countries in the past three decades.

Countries worth mention are Columbia, Israel, Zimbabwe, South Africa, Kenya, Brazil and Costa Rica which have shown keen interest in their export to European countries, particularly to Holland. The top ten cutflowers arranged in descending order on auction turnover are Rose, Chrysanthemum, carnation, tulip, freesia, gerbera, lily cymbidium, gypsophila, iris and alstroemeria (Table 1).

Consumption of floriculture products is closely linked to the GDP of countries. Recent predictions indicate a large expansion in the consumption of floriculture products in East Europe, Japan, China, South Korea, Thailand, Indonesia and Pacific rim countries. There will also be boom bloom in USA and Europe. The per capita consumption of cutflowers and all floriculture products continue to increase in most of the countries.

In spite of increased supply position, export from Netherlands to far off markets such as Japan and USA was down by 13.2 and 16% respectively. This clearly indicates that the Dutch ran out of production during peak times and were

concentrating primarily on markets in the neighbourhood rather than far out markets. It also indicates that Dutch auctions will actively seek overseas suppliers in order to maintain their commanding position in the international market (Table 2)

In spite of current global recession, floriculture trade was not affected to any significant extent. Interestingly, imports into East European countries have increased manifold after foreign exchange and trade restrictions were lifted in 1990. Accordingly, some of the international airlines have enhanced their cargo handling capacities to meet the increased demand.

Global Trading of Cutflowers and Ornamental Plants

Transportation of cut flowers in most of the countries is done by air. Improved methods of storage of cutflowers, particularly the hypobaric storage if properly used, cutflowers can be shipped by sea. At present, this is not economic. The success of market depends on satisfying the psychological, social and cultural needs of the customer and must be available in a place where it is convenient for him to obtain at a competitive price within his concept of value of that product.

Till recently, the international floral trade involved Miami (in USA), Amsterdam (in the Netherlands), Tel Aviv (in Israel) and Bogota (in Columbia). Thailand, Japan and Mauritius are emerging as new trade

centres. International movement of horticultural products is expected to intensify with the entry of more number of third world countries where the production of flowers and plants are cost-effective. The international movement in floricultural products in the future will involve the following countries:

- * North American Countries
- * European Countries (East & West)
- * Australia
- * Japan
- * South Africa
- * China
- * Korea
- * New Zealand
- * Central & Latin American Countries
- * Thailand, Singapore, Hon Kong, Malaysia, etc

Opportunity for Floriculture in India

The Netherlands is expected to target the East European market. This would create a vacuum in marketing of floricultural products in USA, Japan and other South Asian countries and a global deficit in these products is predicted by the year 2000. Since the production in some of the traditionally recognized production centres have levelled off, there is definitely a significant prospect for new entrants in this area. Despite adverse balance of trade position, floriculture is one sector in which India has very good potential to grab a large chunk of this additional requirement. India also has the following compelling reasons to enter international trade in floriculture products:

- * Annual foreign exchange earnings from floriculture products can easily be in excess of Rs 100 crore
- * Floriculture has an annual growth potential of 25 to 30%
- * India is the treasure house of tropical ornamental plants
- * Growing ornamental plants can improve ecological sustainability of Indian agriculture
- * Floriculture is capable of attracting/retaining a large number of progressive rural population in farming
- * Domestic supply is not affected by export in this area
- * Floriculture can create a better future for our nation

India has very good possibilities to set up export oriented units in floriculture because of its following advantages

- * Most places in India has ample sunlight during winter so that there is no need for artificial lighting
- * There is also no need for heating greenhouses in winter in many places in India, with the result, cost of production will be much lower
- * During the peak export season (winter), the rains are uncommon in places suitable for floriculture production. So the percentage of exportable flowers could be much higher in India
- * Soil and irrigation water quality is acceptable in most of the places
- * Labour cost is very low and inflation is also relatively under control
- * There are several big private sector companies showing interest in making huge investments in floriculture - more favourable capital flow

- * India is situated centrally in comparison with most important flower consumption centres in European and South East Asian countries
- * Export will not affect local markets

Major Markets for Floricultural Products from India

Europe and South East Asia are very important markets for India. Because of the opening up of Warsaw Pact countries and also possibility of making use of Dutch trading channels, from where the rest of European markets can be manipulated, Europe may be more attractive to Indian floriculture industry. However, Japan, Hong Kong, Singapore and other countries are also going to be important for India. The floricultural products from India can be sold in the following markets

- * Outstanding quality flowers can be sold in Japan and Europe, particularly in winter
- * In Singapore, Hong Kong, South Korea and Middle East, almost throughout the year. This market may also accept good quality flowers but need not be the top most quality
- * Flower seeds can be exported to USA
- * Europe can be the ideal place for tissue cultured plants from India

Present Status of Export of Floricultural Products

In general, commercial floriculture is of recent development in India. Although there is no specific information available on the level of existing production in terms

of area and production, there are ample evidences to indicate the fact that ornamental plants have expanded their horizons from being objects of hobby to products of lucrative business. In 1990-91, India exported plants and flowers worth Rs 86 crore, of which potted foliage and flowering plants' share was about 36%

Our major buyers are the UK, USA, Germany, Netherlands, Switzerland and France. Small quantities of potted plants and cut flowers went to Kuwait and Saudi Arabia in the Middle East. However, India did not export floricultural products to the Far East and West Asian Countries. These countries offer very good potential for cutflowers and ornamental plants. At present, the demand in these countries are fulfilled by the Netherlands, Malaysia and Thailand. With thoughtful planning and perfect execution of viable projects, it is possible to achieve a target of 100 crore within the next 3 to 5 years. Although there is very good scope for export of flowers and potted ornamental plants, India does not have even a peripheral presence in the international floricultural markets. The underlying problems for our dismal performance in this field are as follows

- * Poor infrastructures for growing floriculture crops for export
- * Poor production both in quantity and quality hence, there is no adequate surplus which can be exported
- * Lack of appropriate planting materials and production technology for export. The basic inputs (standard container/growing media, chemical fertilizers, pesticides and quality packing

materials) are not easily available, with the result only a few entrepreneurs have undertaken flow production for export

- * Floricultural products are highly perishable and unlike fruits and vegetables cannot be used by discarding only the affected portion of the product
- * Proven methods of prolonging post production life of cutflowers and potted plants remain unknown to commercial ventures. Ornamental plants in soil based container medium are not allowed for import in most European and Middle East markets. Sphagnum peat moss has to be imported at very high cost
- * India's experience in exporting floricultural products is very much limited
- * Absence of market surveys and pricing information for our horticulture products
- * Lack of sales promotion activities in importing countries
- * Non-availability of training facilities on production and post-production technology for export
- * Lack of streamlined quality control mechanism and poor coordination between government agencies involved in the import/export of floricultural products
- * Government regulations for export/import are very time consuming and not in favor of export
- * Exorbitant freight charges and no priority in handling of perishable floriculture products

- * Indian exporters do not get subsidy on import of production inputs and export of finished products
- * High interest rates and slow rate of return discourages investors
- * There is no nodal or coordinating organization actively involved in promoting export of floricultural products in India

The major cost disadvantages, in terms of percentage of gross realization in the international market, in comparison with competing countries are

* Airfreight	-	38%
* Interest	-	18%
* Duty on Indian flowers levied by EEC countries	-	15%
* Auction expenses	-	12%

Even with upgraded technology and efficient growing infrastructure (by taking advantage of favourable climatic conditions), the disadvantages towards freight, consumables and interest on borrowed capital can make the project less attractive to the entrepreneur. Interest rate in Holland is only 4 - 6% while major suppliers like Columbia, Mauritius, etc are exempted from import duty. Thailand, Columbia and Mauritius have concessional air freight rates for flowers.

Strategies for Boosting of Floricultural Products

As already stated above, there is a significant demand for cutflowers and live plants in the international markets. India has a very good potential for entering into the international trade in flowers. Further, certain flowers and plants are grown in

climates peculiar to India and these products have tremendous export potential. In view of the immense export potential of floricultural products, the Government of India has identified floriculture as one of the most potential areas for development of exports and has considered it for "extreme focus" export sector. Several industrial houses, either on their own or in collaboration with multinational companies, have shown keen interest in this capital intensive high tech farming. Some of these projects have already gone into operation and many more are likely to be in operation in the next few years. Roses, carnation, chrysanthemum, orchids, gladiolus, dry flowers, live ornamental plants and tissue culture plants have been considered as potential items for export.

The Government of India has fixed Rs 130 crore targets for the export of cutflowers, seeds, live plants and tissue culture products for 1995-96.

Conclusion

A continuous desired annual growth in area, productivity and export target can be achieved only through well planned selective promotion programmes. These programmes must mobilize the resources available with government, public and private sector. The export enhancement programme, therefore, must envisage the following basic strategies:

- * We have to select suitable areas in the country where different plants can be grown either naturally or under controlled conditions.

- * We should get from the best sources, motherplants of outstanding varieties Utilizing this, we can enter the international market at a faster pace
- * In order to meet the planting material requirement, we should establish seed villages to multiply and distribute
 - ◇ pure seeds of both self pollinated and hybrid strains, and
 - ◇ superior planting materials through a combination of tissue culture and mist propagation
- * We should popularize the idea of floricultural cultivation and the persons interested should be trained to undertake such activity with adequate financial support at low bank interest
- * Government should permit importing of climate controlled greenhouse and other infrastructures required without duty atleast for the next few years until our technocrats understand and become capable of developing these indigenously
- * Creation of appropriate infrastructures for production, post-production, handling and transportation of floricultural products in the best condition
- * Fixing well defined quality standards for each and every plant propagated through tissue culture or conventional method on the similar lines of National Seed Act This will create quality conscious and lead to acceptance of our plants in international markets
- * Large scale importation of planting materials and production inputs (specially fertilizers, pesticides, peat moss, etc)
- * Production specially directed for export to specific markets
- * Air transportation should be made attractive and the special commodity rates should be implemented
- * Establishment of cooperative auction system on similar lines of Dutch system In this context, I wish to say that being the pioneer of Indian horticulture, IAHS plans to start auction system in selling its young plants
- * Establishment of marketing/ distribution channel
- * Since protected cultivation of floricultural crops is very expensive, bank interest should be reduced to assist many young entrepreneurs to take up production
- * Advertisement and government support
- * Need based research and development

There will be tremendous potential in the market, but we can exploit them with quality products, good interesting assortments (product mix), competitive prices and lot more information Creation of appropriate infrastructure and continuous training of manpower will be of paramount importance We will also have to develop an effective distribution system and an information circuit Establishment of service centre-cum-auction and trading house can significantly boost our export performance in this sector The main underlying factor regarding the future of floriculture trade is government cooperation and support on a long term basis

Table 1

Top Ten Cutflowers

CROP	1984	1985	1989	1990	1991
Rose	485	499	646	704	825
Chrysanthemum	381	422	492	565	598
Carnation	343	250	271	276	292
Tulip	168	181	225	238	254
Freesia	156	149	144	150	168
Gerbera	143	143	*	126	143
Lily	122	132	201	212	231
Cymbidium	91	94	98	96	109
Gypsophila	75	82	98	108	108
Iris	50	50	*	-	-
Aistromeria	-	-	64	67	79

Table 2

**Flower Consumption in
Major Regions of the World**

Region	Year	Flower Consumption (US\$ billion)
Western Europe	1991	12
	1995	15
	2000	18
Eastern Europe	1991	5
	1995	7
	2000	9
United States	1991	6
	1995	8
	2000	11

DEVELOPING DYNAMIC HORTI-BUSINESS

How Could We Join the Winners?

A J Advani
General Manager - ICICI

Agriculture is the back-bone of the Indian economy. After independence, we were short in food grains and had to depend on imports. However, with emphasis on food grains in the initial Five Year Plans and subsequent Green Revolution, we emerged winners and became self sufficient in food grain production. In the recent past, emphasis has been on cereals and oilseeds. We are almost on the threshold of a breakthrough in this field. However, we have missed the opportunities in the field of horticulture. Belatedly, wisdom is dawning on us that great opportunities have been lost by not pursuing the right policies and neglecting some vital aspects of this sector.

Nature has been kind to us bestowing sunshine all the year round, a variety of agro-climatic conditions and soils. Moreover, one of the important elements of our core competence at present is availability of relatively low cost, highly skilled man-power. With an area of more than 8.7 million hectares under fruits and vegetables, India is one of the world's largest producers of vegetables and fruits. Although India's horticultural production is high, estimated at around 94 million tonnes per annum, the processing capacity is small. Due to lack of proper technologies and modern support systems, nearly 30% of the production, amounting

to about Rs 6,000 crore, gets perished every year by the time it reaches the consumer from the farm gate. We cannot afford such a large wastage and hence post-harvest processing has become as important as pre-harvest care. The inadequate processing facilities have restricted India's share in the world market of processed horticulture products to less than 1%.

With a view to address critical areas of deficiency in the horticulture operations, we will have to formulate schemes which aim at developing a dynamic private sector agribusiness in India. The main objective would be to improve the investment environment for private agribusiness in pre- and post-farm horticulture operations.

To join the winners, the first emphasis would have to be on the improvement of the yield of our produce. Barring a few crops, our yields are one half to one third of the other countries. It is possible to improve yield by introduction of tissue culture, improved varieties of seeds, development of new varieties by our agro-scientists. The second step would be use of nutrients, preferably bio-fertilisers, composts and vermiculture. This would substantially improve our price realization in the international markets and India.

could emerge as a leader of naturally produced products in the world

We will have to change our attitude towards agri-production from nature-based to technology-based by introduction of green houses, green tunnels, drip irrigation, controlled atmosphere, music simulation and use of modern implements which reduce the damage during harvesting

Obviously, individual small holdings cannot lead us to winning position and we will have to consider new methods of collective, cooperative, corporate, contract, lease and joint farming. Land holding laws may also be changed particularly if waste/barren land is brought under additional horticultural production

To be international players, we will have to modify our production to meet the demand of consumers in terms of quality, taste, size, colour, texture, pesticide residues, etc. So far, we have been producing fruits, vegetables and flowers mainly from the point of view of local consumers. However, the opportunities and returns are substantially higher - 5 to 10 times in other countries

A major effort would have to be made on minimizing post-harvest losses and increasing the shelf life by using new technologies like mobile pre-cooling, individual quick freezing, freeze drying, low temperature dehydration and other techniques. High value addition could be achieved through setting up of processing units with modern facilities for sorting,

grading, processing, aseptic packaging and converting the fresh products into juices, syrups, jams, jellies, pastes, powders, fruit bars, chips and precooked items. Health and hygiene are of prime importance in production as well as packaging. With processing facilities, the availability period for fruits and vegetables is extended enabling farmers to realize higher prices for their produce

In the developed countries, between 70% - 80% of the produce is processed, even in developing countries like Thailand, Philippines, Malaysia between 40% - 50% of vegetables and fruits produced in the country are being processed. Processing, not only reduces the "perishability", it also increases shelf-life of a product, makes it available in a "ready to consume" and "convenient" form throughout the year. Processing makes it possible to recover valuable by-products from peels, skins, seeds, stones and leftovers. Processed products, not only provide better returns to farmers, they also provide employment opportunities for the rural people, improve income and standard of life in villages and small towns. Processing plants, which are normally located in the vicinity of production centres, reduce migration from villages to cities. Formation of slums in big cities, where migrants live in sub-human conditions, could be avoided to some extent if processing industries are encouraged to be developed in rural areas. Even pollution problems of a city with large quantities of biodegradable garbage could be reduced to some extent and big cities could have

less quantities of perishing and stinking garbage, improving the standard of living

Unfortunately, we started with some negative notions that processed products are only for the rich and went on taxing these products to the hilt with all forms of duties and taxes. With additional exorbitant costs of packaging, marketing, etc., what the consumer got in a processed pack was hardly 20% - 25% value of money compared to fresh produce. As a result, middle class consumers, which form a large percentage of the population, could not afford processed products and local markets for these products remained undeveloped. In contrast, in the developed countries, the scale of operations has enabled processing units to introduce modern technologies and farm practices, thereby providing high yields, improved qualities, disease resistant varieties and by-product recovery - all resulting in lower cost of production. In developing countries, sometimes processed products are cheaper than fresh produce.

Fortunately, the policy makers have now realized the importance of this sector and are encouraging the development of horticulture processing as a thrust area. In the current Five Year Plan, an amount of Rs 1,000 crore has been provided compared to Rs 27 crore in the early Plan. This would enable us to overcome many deficiencies and catch up with the other countries in increasing our share in the world markets.

Obtaining state-of-the-art technology, equipment, market information and tie-up support for joint ventures with other companies would enable Indian entrepreneurs to enter sophisticated markets. For this, there is a need to conduct sectional studies to examine gaps in the technology and healthy development of various sectors, policy studies to reduce bottlenecks, and enhance prospects of commercialization and export earnings. In addition, training programmes for producers, processors, scientists, agro-economists, entrepreneurs and institutional officers in India and abroad are also required.

In the winning category, India holds promise for mango, banana, grapes, guava, pomegranate, cashew, berries, orange and other citrus, fruits, papaya, pineapple, onion, mushroom, cabbage, garlic, bitter gourd, baby corn, medicinal herbs, etc. Processed items include tomato puree, banana powder, mango and guava pulp, dehydrated onion, pickles and chutneys, spices and herbal products.

In addition, floriculture, both cutflowers as well as dried and preserved flowers and foliage, also holds a big promise for India. With more than 35,000 hectares of land under floriculture, India's world share in exports is less than 0.1%. The world market has been growing at around 15% each year and is estimated at around US\$ 50 billion, whereas India's exports amount to only US\$ 3 million. With modern technologies, infrastructure and marketing support, India could achieve

substantial increase to the tune of US\$ 100 million in the next five years

Improved infrastructure, in terms of approach roads to production and marketing centres, cold storages at airports, additional air and sea cargo handling facilities including refrigerated containers/vans and creation of modern market yards, auction centres and airports should be the priority of the Central and State Governments who wish to join the winners' club

Horticulture has potential for large employment in rural areas. Also, it could be a major export earner for the country. Hence, the government should concentrate on creating infrastructure. It should also provide fiscal incentives to processing units in terms of duty and tax exemptions/drawbacks for all inputs including packaging materials and finished products, etc till this sector achieves a prominent place

For individual units to be winners, an integrated approach of production - processing and marketing is a must. All these elements have to be coordinated and well-balanced. Moreover, since the units have to deal with commodities that are seasonal in nature, their planning has to take into account multi-product handling so as to ensure maximum utilization of capacity

Time is the essence for achieving success. All the agencies involved, that is, central, state and local governments, financial institutions and banks, agricultural universities and research institutions, farmers, enterprises have to act in a coordinated manner and expedite their decisions and implementation plans for this multi-colour "Ranga Rangi" Revolution to succeed and for India to become a winning country