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MANGO AND AVOCADO: EMERGING FRUITS IN WORLD HORTICULTURE AND TRADE

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INTRODUCTION

For centuries people of European ancestry have traditionally relished and consumed apples, pears, plums, peaches and other fruits grown successfully only in the temperate zones. Citrus fruits from the subtropical Mediterranean basin have also been known to westerners for a long time. Although most of these fruits are not actually native to Europe but were introduced from Asia long ago, their study and improvement constitute the foundation of western fruit horticulture, and have contributed almost our entire backlog of knowledge of fruit horticulture in general.

Tropical fruits, on the other hand, made their first appearance in the sixteenth century, following their discovery and introduction by early Portuguese and Spanish navigators. Today fruits such as the banana and the pineapple are readily available to consumers in North American and European countries. Both comprise industries of staggering proportions, to the extent that the entire economics of many small countries are based on their successful production and marketing. Very recently a new trend in fruit growing has originated in warm tropical and subtropical areas. Mango and avocado orchards are being planted at an increasing rate largely for the export market. The initial success in selling and transporting these fruits on a commercial scale to distant markets warrants more attention from horticulturists and governments around the world. In fact, this success suggests that an international mango and avocado industry will steadily increase in importance and perhaps even rival the far-flung banana business.

Present Status of production and exports

Many of the less developed countries have already launched a modest avocado and mango industry or are conducting research to determine whether it is feasible to grow these fruits on a commercial scale. Mango production in most of the highly populated countries of Southeast Asia is expanding but is mostly handled by small local businesses with only small, experimental quantities for the export market. The Philippines, however, has been exporting appreciable quantities of 'Carabao' mango and other fruits to Hong Kong, and Singapore (Table 1), and several studies are at present under way to increase production and to evaluate the possibilities of expanding exports to such potential large markets as Japan.¹ The industrial city of Hong Kong is another expanding market for tropical fruits. Visitors to this city's markets find a large variety of fruits imported from Thailand, Taiwan, Australia and even avocados from as far away as California.

Table 1. Commercial production, acreage and exports of mango and avocado of some countries.^{1/}

Production Area	Fruit	Acres	Production metric tons	Exports metric tons	Year
1. California	Avocado	22,246	25,618	--	1969
2. Florida	Avocado	5,100	16,951	--	1971
	Mango	1,388	2,432	--	1971
3. India	Avocado	--	--	--	--
	Mango	1,507,504	--	--	1967
4. Israel	Avocado	4,200	7,400	4,500	1971
	Mango	100	192	20	1971
5. Mexico	Avocado	33,909	158,000	--	1971
	Mango	28,625	229,000	2,150	1971
6. Philippines	Avocado	150	300	--	1971
	Mango	3,587	13,043	6,522	1971
7. Republic of S. Africa	Avocado	2,450	9,140	2,340	1971
	Mango	1,420	7,416	107	1971

Sources:

- 1,2. California and Florida Crop and Livestock Reporting Service, USDA
3. S. Singh, S. Krishnamurthi and S. L. Katyal. 1967. Fruit Culture in India. I.C.A.R.
4. R. J. Ticho, Ministry of Agriculture, Tel Aviv, Israel
5. S. Alvarado, Instituto Mexicano del Café, Mexico
6. R. V. Valmayor, University of the Philippines, Los Baños, Philippines
7. A. J. Joubert, Citrus and Sub-tropical Research Institute, Nelspruit, Republic of S. Africa

^{1/} Figures on production and acreage include only bearing orchards of known commercial varieties, except for Mexico, for which figures include groves of seedling trees and recently planted non-bearing orchards.

In the western hemisphere, Mexico, perhaps more than any other country, enjoys ideal conditions for a successful tropical fruit industry. One added advantage is its proximity to the large markets of the U.S., to which it annually exports approximately 2000 metric tons of fresh mangos. Mexican government officials estimate that in the next 5 years mango and avocado production will increase to 5 times the present production (3), and judging by the ever growing pace of new orchard planting throughout the country, this figure may be a conservative one. Mexico's per capita consumption of avocado is one of the highest in the world and most of the country's production is sold locally. Quarantine regulations in the U. S. prohibit the importation of this fruit into southern and western states. This quarantine protects both Florida's and California's avocado industry against the introduction of the avocado borer (*Stenomoma catenifer* Wlsh.), and the avocado weevil (*Heilipus lauri* Boh.), two damaging insect pests not yet present in the U. S. (5). To any one familiar with the Central American countries, it is evident that avocado and mango production has increased markedly in the past 10-15 years. Unfortunately, accurate records or even estimates of production are non-existent. Other Latin

American countries are developing fruit industries as fast as their technology, transportation facilities and general progress permit.

In the Mediterranean basin, Israel is unique in expanding its avocado industry very rapidly (1). Approximately 60% of its annual production of about 7400 metric tons is exported to Europe (Table 1). Mango production is still negligible and because of climatic limitations does not offer encouraging prospects. In contrast to Latin America, Israel has a relative abundance of technology but is rather limited in suitable land and irrigation water for expansion of its fruit industry.

The Republic of South Africa takes advantage: of its geographical position in the southern hemisphere and avoids direct competition with Mediterranean countries for the European market by shipping mangos and avocados during the opposite season of the year (Table 1). The relatively few mango shipments go by air, while the bulk of the avocado tonnage goes by sea to Britain and France, which are the two best markets in Europe for tropical fruits. About 60% of the mango production is equally divided between the 'Haden' and 'Kent' cultivars, while 71% of the avocado production consists of 'Fuerte'.

Reasons for the increasing demand and production

The influence of jet transportation on tourism, travel and air cargo is perhaps the greatest single factor in creating the recently expanded demand for avocados and mangos. Travelers are exposed to different fruits and become aware of new flavors. Since air shipments have been revolutionized by containerized and mechanized handling of cargo, the volume of tropical fruits and other perishable products arriving at large city markets has sky-rocketed. For instance, it is expected that papaya exports from Hawaii to the U. S. west coast will increase from a present 8 million pounds to 13 million in 1975 (2). Depending on volume, mangos are at present sent air cargo from Johannesburg to London for 12 cents (U. S.) a pound,² which is approximately the price of moving pineapples from Honolulu to Chicago (2). With the introduction of the Jumbo jets and air buses, it is predicted that present rates will be further reduced by increasing the available cargo space on passenger planes (2).

Other factors contributing to the present demand for tropical fruits are the growing affluence of people in developed countries who can afford to experiment with new flavors and be more liberal in their purchases. Television, radio and the newspapers in these countries have changed people's attitudes and opinions of other lands, and interest in their customs and foods. Finally the rapid progress of developing countries in research and technology has helped to solve many chronic problems of production and marketing. One example is the use of superior mango and avocado cultivars better adapted to the requirements of the export market. In this respect, it is interesting to note that cultivars developed in Florida and California have had a tremendous influence on the fruit industries of many small countries. As a corollary of this, there may come a time when due to the increasing cost of labor and suitable land, the United States will depend on the tropical American countries for its supply of mangos and avocados.

¹R. V. Valmayor, Personal Communications,
²A. J. Joubert, Personal Communication,

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