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CUBA'S CITRUS INDUSTRY: GROWTH AND TRADE PROSPECTS

I. INTRODUCTION

1. This paper summarizes developments in the production and trade of citrus in Cuba, describes the present situation and reflects on its future.

II. BRIEF HISTORY OF THE CITRUS INDUSTRY IN CUBA

2. The Cuban citrus industry was created at the end of the 1960s to supply the markets of the former Soviet Union and socialist countries in Eastern Europe with whom Cuba had close economic ties. In those days, citrus consumption in the socialist block was considerably lower than in Western European countries. Market studies revealed the acceptance of tropical oranges as a table fruit, a commodity that was not sold in the international markets except in small quantities. Grapefruits were barely known, so the market had to be created. The main objectives of the programme were to export fresh oranges and grapefruits, to process the fruit that was not suitable for sale as fresh products, and to fully meet the domestic demand for fresh fruits.

3. The National Citrus Programme met these expectations. From 1975 onwards, citrus production increased at an average annual rate of 14 percent, reaching 1 017 thousand tonnes in 1990 and an area planted of 115 000 hectares (see Graph 1). At the end of the 1980s, five Cuban ports exported some 500 000 tonnes of fresh fruits. Three plants processed more than 200 000 tonnes of fresh fruit to produce juice for exports. The national per capita consumption was above 25 kg per year.

4. The need to provide scientific and technical support was understood from the outset, and training of scientific and technical personnel was provided as well as working facilities. The work gradually incorporated tropical fruits and became what today is known as the Tropical Fruit Tree Production Research Institute (Instituto de Investigaciones en Fruticultura Tropical - IIFT). Citrus

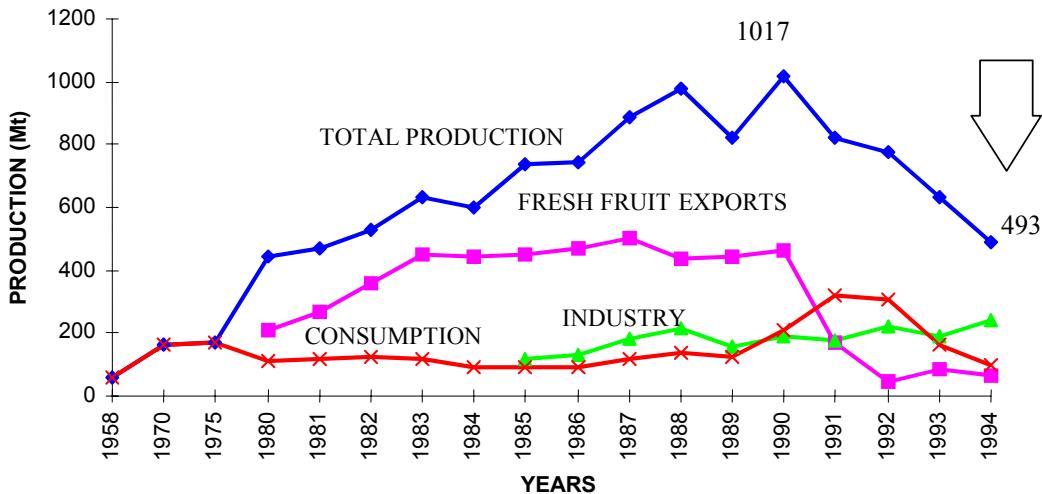
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rapidly became one of the main exports of the country and the annual income increased to some US\$180 million. The potential of the groves was in excess of three million tonnes per annum; the rate of growth achieved could be sustained by the infrastructure and the demand for Cuban citrus.

5. However, the sudden disappearance of the socialist market created great losses to the Cuban citrus industry, which halved production in 1994. This situation was but part of a general economic crisis caused by the unexpected loss of markets Cuba had, to a large extent, integrated into its economy, such as the Soviet Union and other European socialist countries.

Graph 1 - Production and destination of Cuban citrus 1958-1994



6. In 1994 more than 50 percent of the area planted to citrus had been lost, and the rest was in poor conditions. Major changes were required to save the citrus industry: firstly to shift fresh fruits the share that goes to processing, including the rebuilding and enlargement of existing processing plants. Secondly, to rescue the best groves, increase yields and reduce production costs. However, the road to recovery was difficult because no operating capital or international trade channels were available. The main actions taken were:

- In 1994 the National Citrus Corporation was founded. Today it is known as the Fruit Trees Enterprise Group (GEF). It was made up of 13 citrus enterprises, a commercial company and 4 four processing plants. The IIFT was also part of this new organization.
- State-run farms were dissolved in 62 percent of the areas planted to citrus, and a cooperative system was created with its workers. The cooperatives were given credit to purchase the groves, the equipment and the facilities. The land was given on the basis of a permanent right of enjoyment, and Basic Units of Cooperative Production (UBPC) were created.
- Groves were restructured; those with potential for profitable yields were kept and those in a poor state eliminated. Low-input technologies were applied.
- Agreements were signed with foreign companies for the provision of funds, technical assistance and trade.
- Priority was given to restructure and enlarge the existing plants.

7. As shown in Table 1 below, the recovery of citrus groves was already apparent in 1996. Production in the year 2000 represents 87 percent of the historical record which was achieved in 1990.

Table 1 - Production and use of citrus: 1995/96 - 2000

	1995/96	1996/97	1997/98	1998/99	1999/00	2000
Total output	564.4	795.1	658.9	739.3	730.5	892.4
Processing	366.5	527.1	478.8	599.9	620.3	675.3
Fresh fruits for export	48.7	54.2	38.6	32.9	31.0	29.6
Domestic market	149.2	213.8	141.5	106.5	79.2	187.5

8. In November 2001 Michelle, a category IV hurricane with sustained winds of more than 200 km/h, hit the central part of the island and damaged the largest Cuban citrus enterprise (Jagüey Grande). Some 20 000 ha of citrus plantation were damaged and an estimated 400 000 tonnes of grapefruits and oranges fell to the ground. Groves from the Isle of Youth and other central areas were also affected. In the year 2002, two more hurricanes followed the same route as Michelle, hitting citrus groves in the Isle of Youth and Pinar del Río. 2001 and 2002 were the most violent hurricanes seasons in the history of the Cuban citrus industry. It is estimated that, should these not have happened, over one million tonnes of fresh citrus could have been harvested this season.

III. CURRENT SITUATION OF THE CUBAN CITRUS INDUSTRY

A. INSTITUTIONS

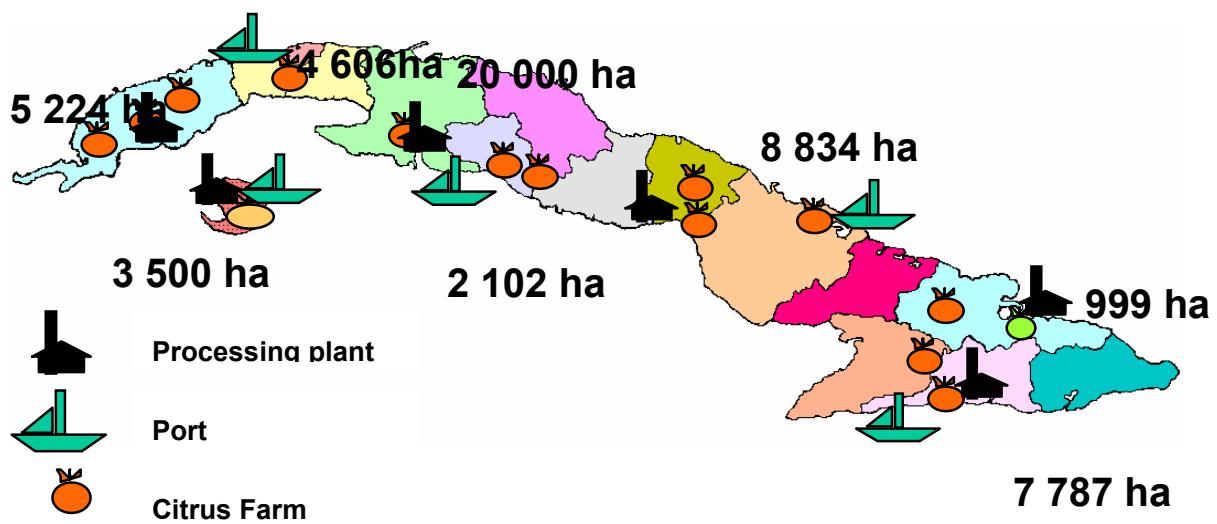
9. The Cuban citrus industry operates within the Fruit Trees Enterprise Group (GEF), which in turn operates within the Ministry of Agriculture. GEF also covers some non-citrus fruit trees enterprises, one enterprise for the production of flowers and ornamental plants, an import-export company that controls cold storages and other services (Cítricos Caribe S.A.), a commercial company for fruits and vegetables and the Tropical Fruit Trees Research Institute (IIFT) that provides scientific and technical support for the Cuban fruit tree system. Nearly 27 000 workers are involved today in this sub-sector.

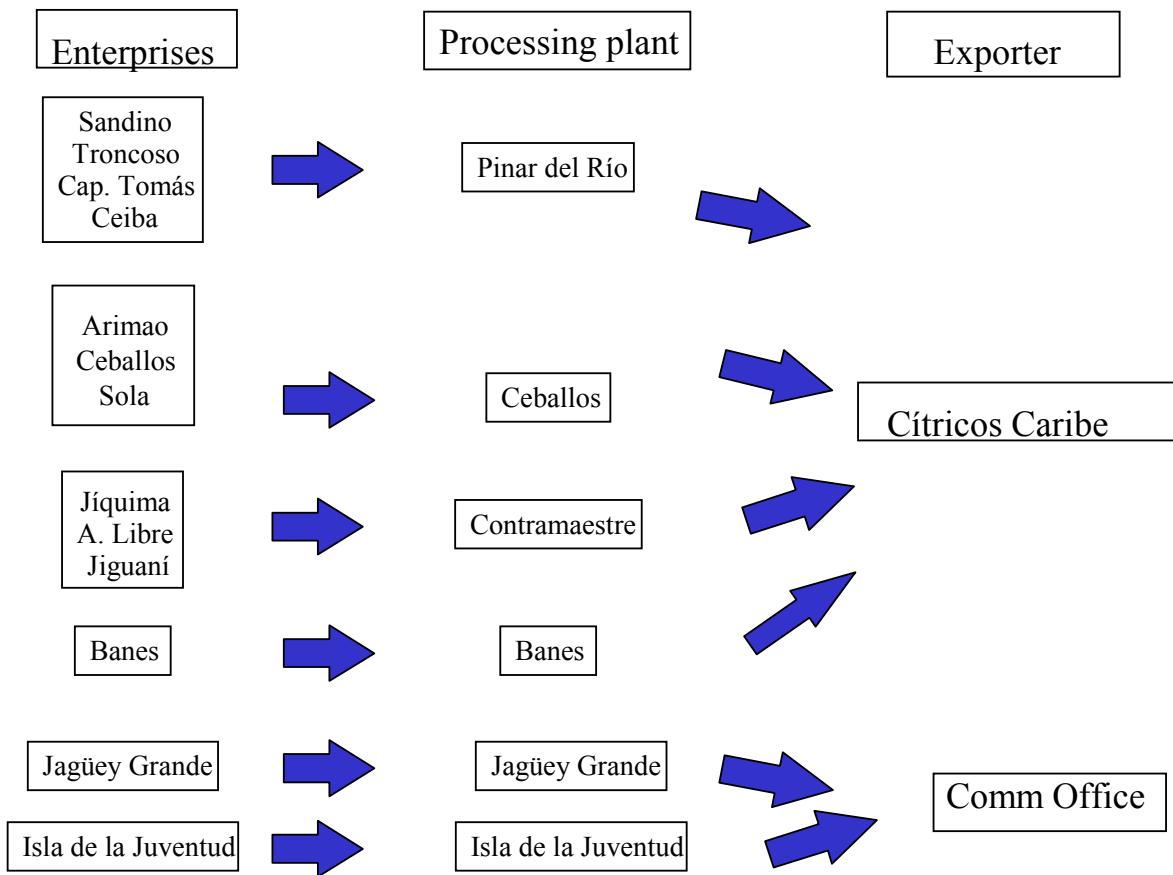
10. Two production and export systems operate in GEF (see also Graphs 2 and 3):

- (a) An export system which includes, apart from UBPC, the Cooperatives for Agricultural Production (CPA), the Cooperatives of Credits and Services (CCS) and private farms. The enterprises of this system receive and provide funding for growers, import the inputs, operate large irrigation systems, workshops for the machinery and packinghouses for fresh exports. Processing plants are also included in this system.
- (b) Cítricos Caribe S.A. operates three cold storage facilities and exports through the ports of Havana, Cienfuegos, Santiago de Cuba and Nuevitas. The processing plant in Pinar del Río is a joint venture between Italian investments and Cítricos Caribe S.A.
- (c) The second export system is formed by two enterprises that manage the production of state-run farms (Jagüey Grande and the Isle of Youth). This system produces, processes, packs and exports its produce. Since 1992 it has worked jointly with foreign capital, including the provision of funds, technical assistance and sales in the international market.

11. Other private farms produce an estimated 60 000 tonnes of fruits per annum for the domestic market.

Graph 2 - The Cuban citrus industry



Graph 3: Link between production, processing and exports

B. MAIN SPECIES AND VARIETIES

12. Oranges and grapefruits have a similar share of volume and make up for around 95 percent of the total citrus production. Orange groves cover about two-thirds of the total area planted and grapefruits about 30 percent. Other citrus include limes, lemons, mandarins and hybrids.

13. The main orange variety planted is Valencia. There are some areas with other early orange varieties such as Navel and China, sold in the domestic market and not suitable for processing because of their low content of total soluble solids.

14. The main grapefruit variety is Marsh, most of which is processed. Ruby Red is important in Jagüey Grande, Ceiba and the Isle of Youth and its main destination is the fresh fruit export market. The introduction of highly coloured grapefruits began in 1992 with 100 ha of Star Ruby in Jagüey Grande, and more recently Río Red has been introduced.

15. Persian lime is the main acid citrus fruit. Mexican lime is restricted to the enterprise "Banes" which extracts essential oils. Many of the citrus enterprises have small groves of mandarins and hybrids.

C. ORGANIC FRUIT

16. Some quantities of single-strength and concentrated juices duly certified as organic have been exported since the year 2000, but no organic fruit is exported fresh.

Table 2 - Production of organic fruits and juices (single-strength equivalent base)

Production (MT)	2000-2001	2001-2002
Oranges	4 060	2 767
Orange NFC*	2 030.8	1 378.4
Grapefruits	1 941	1 416
Grapefruit NFC	808.9	590.7
TOTAL FRUITS	6 001	4 183
TOTAL JUICE	2 839.7	1 969.1

* Not from Concentrate

17. Production of organic fruit started in mixed farming systems in Baracoa, taking advantage of grapefruit production in coconut, cocoa and coffee plantations untreated with chemicals. Also included were groves that had not received chemicals since the crisis caused by the collapse of the socialist markets. In the year 2000, a conversion of three commercial groves covering an area of 350 ha started in Havana, Ciego de Ávila and Cienfuegos.

18. Hurricane Michelle damaged severely the 2001-02 crop of organic fruit, while other hurricanes also affected the production in the 2002-03 season in the provinces of Havana, Matanzas, Cienfuegos and Ciego de Ávila.

19. Organic citrus production faces several problems:

- Sources of organic fertilizers are wanting. The organic residues of sugar mills are committed to the production of vegetables for the population, while citrus peels – another source already evaluated – are allocated to feeding cattle.
- Lack of seeds of nitrogen-fixing legume plants to be intercropped with citrus for nitrogen supply and weed control.
- Selected groves required heavy investments in irrigation systems.
- Hurricane activity has hampered the development of this initiative.

20. Early results are promising despite these important constraints. Selling prices are attractive, and organic orange juices and grapefruits have enjoyed good acceptance levels. Therefore a decision has been made to incorporate an additional 69 ha that would yield 20 t/ha, which marks a shift from the current strategy of working with lower yielding groves.

D. PROCESSING OF CITRUS

21. The largest investments of the last decade were aimed at rebuilding and enlarging the existing industrial base, and at improving its operation to international standards. Two new plants have been built: one in the east and one in the west of the island. The average distance from the groves to the processing plants is now 100 km.

Table 3 - Citrus processing plants in Cuba

PROCESSING PLANTS	Total fruit processed in the year 2000 (MT)				
	Oranges	Grapefruits	Limes	Total	%
Pinar del Río		39 723		39 723	6
Jagüey Grande	158 488	252 392		410 880	61
Isla de la Juventud		30 767		30 767	5
Ceballos	65 000	71 568	1 195	137 763	20
Contramaestre	42 744	8 396		51 932	8
Banes			5 027	5 027	1
Total	266 232	402 053	6 223	675 300	100
%	39	60	1	100	

E. CITRUS EXPORTS

22. Fresh fruits are exported by four enterprises: Jagüey Grande, Arimao, Ceiba and the Isle of Youth. Today, Cítricos Caribe S. A. exports fruit from Ceiba and Arimao: some 500 000 cartons (60 percent oranges, 33 grapefruits, 7 Persian limes) or an equivalent of 8 000 tonnes per annum mainly to the European Community. Jagüey Grande exports some 20 000 tonnes of fresh grapefruits and oranges, also to the European Community. Isle of Youth exports some 1 000 tonnes of grapefruits per year.

Table 4 - Industrial production and exports (2000 and 2001)

	Total	Orange	Grapefruit	Tangerine	Lime
2000					
Total production	66 320	26 432	25 052	295	60
Frozen concentrated juices	50 923	25 830	24 762	295	36
NFC	14 482				
Essential oil	915	602	290		23
EXPORTS	63 651	26 607	22 175	282	104
Frozen concentrated juices	48 127	25 870	21 897	274	85
NFC	14 482				
Essential oil	1 043	738	278	7.8	19
2001					
Total production	61 323	35 366	15 852	85	131
Frozen concentrated juices	50 196	34 331	15 677	83	105
NFC	9 889				
Essential oil	1 238	1 035	175	1.6	27
EXPORTS	59 117	34 555	14 716	80	128
Frozen concentrated juices	48 262	33 540	14 541	79	102
NFC	9 637				
Essential oil	1 217	1 016	175	1.2	26

F. THE DOMESTIC MARKET

23. The domestic market is supplied mainly by GEF which in the year 2000 provided 124 500 tonnes of fruits. The rest, an additional 60 000 tonnes, was supplied by the private sector. A share of this production is distributed to the population at low prices, and the rest is sold in groceries at prices freely determined by supply and demand. Annual per caput consumption is some 15 kg. The tourist industry consumes some 8 000 tonnes of fresh citrus per year. The domestic market consumes about seven percent of the processed national citrus output, namely some 4 000 tonnes of juices and other industrial products.

IV. MAIN CONSTRAINTS TO PRODUCTION AND POSSIBLE SOLUTIONS

24. Like all other Caribbean citrus producing areas, Cuban groves are threatened by the propagation of the Citrus *Tristeza* Virus. Although the carrier aphid has been in Cuba since 1993, massive death of trees has been avoided thanks to the disease control programme in place. Cuba could replace *Tristeza* sensitive trees for tolerant and highly productive sour orange rootstocks. This replacement could be made with certified propagation material, at close spacing and a technological package that would guarantee much higher yields than the current ones, and lower production costs. This change would be essential to improve the competitiveness of the Cuban citrus industry. However, financial problems have hampered the rapid replacement of the current groves.

25. Cuba has many advantages that would allow it to compete in the international market.

- Land availability and a qualified labour force.
- Irrigation infrastructure with many pumping stations and underground water pipe systems.
- Processing plants near the planting areas.
- Transport, storage and port infrastructure.
- Scientific knowledge and technical know-how.

26. The strategy today is to plant 30 000 ha of highly productive trees on rootstocks tolerant to *tristeza* as soon as possible and to achieve an output of one million tonnes of fresh citrus per annum.