RECENT DEVELOPMENTS IN THE CUBAN CITRUS INDUSTRY

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Abstract. Developments in the former socialist countries of the Soviet Union and Eastern Europe since 1989 have had a dramatic impact on the economic situation in Cuba. This, in turn, has placed a great deal of pressure upon the Cuban government. In response, the Cuban government has entered into a process of economic reforms which includes the Cuban citrus industry. This paper presents an historical perspective of Cuba’s citrus industry from 1958 to 1990 during which time Cuba’s economy was directly aligned with the former Soviet Union Socialist bloc’s subsidized barter market arrangement. The economic impact to the Cuban citrus industry that occurred after 1990 with the disintegration of the Soviet Socialist bloc is discussed along with current economic and market reforms. The economic reforms include foreign joint ventures, establishment of grower cooperatives and exporting fresh and processed citrus products in the international free market arena.

Developments in the former socialist countries in the Soviet Union and Eastern Europe since 1989 have had a dramatic impact on the economic situation in Cuba. This, in turn, has placed a great deal of pressure upon the Cuban government. In response, the Cuban government has entered into a process of economic reforms. These reforms are an attempt by the Cuban government to deal with the realities of competing in the world market for citrus. The objective of this paper is to present a recent history of the Cuban citrus industry and to discuss the economic reforms as they relate to citrus in Cuba.

Historical Perspective

Citrus production was introduced to Cuba by the Spaniards at the end of the fifteenth century. During the period which Cuba was under Spanish rule, citriculture had little economic importance. Sugarcane, tobacco and coffee were the major agricultural crops grown for export by the Spaniards. After Cuba gained its independence from Spain in 1902, foreign capital investment in citrus, particularly from the United States, introduced new technologies which resulted in increased citrus production. In 1959, less than 30,000 acres of citrus could be found in Cuba.

In the aftermath of the revolution that brought the Castro regime to power, most land used for agriculture was expropriated by the government. Thus a large land base was brought under government control. Citrus was identified as a crop to be emphasized and used for export. Consequently, citrus acreage expand rapidly as shown in Fig. 1. By the 1974-75 season, approximately 300,000 acres were devoted to citrus, and Cuba was ranked among the five largest citrus producing countries in the Western Hemisphere.

Figure 2 shows the major citrus producing regions in Cuba. Citrus is grown throughout the Cuban island. The two citrus producing regions which have the greatest impact on the export market are Jaguey Grande and the Isle of Youth. Jaguey Grande is the largest citrus planting in Cuba with over 100,000 acres designated for the production of oranges and grapefruit. The Isle of Youth which is known for producing high quality grapefruit has over 37,000 acres designated for citrus production. These two regions represent approximately 44% of the total citrus area in Cuba. The remaining citrus production regions provide citrus fruit primarily for the domestic market.

Cuba’s Citrus Acreage

Figure 1 shows the estimated total citrus acreage in Cuba from 1958-59 to 1993-94. Note that the total acreage represents the land area designated for citrus and not “net land (grove) area” planted with citrus trees. In other words, approximately 17% of the total land area includes roads, windbreaks, etc., which must be subtracted to estimate total grove area. Published citrus acreage in Florida represents net planted or tree acres.

In Table 1, adjustment factors are applied giving total tree acres and the citrus tree inventory in the 1993-94 season. In that season, orange acreage was approximately 139,500 acres or 58.5% of total citrus acreage. Just over 72,000 acres of grapefruit were planted with the remainder devoted to lemons, limes, and specialty fruit. Also note the high proportion of orange acreage which is bearing. This suggests that, in the foreseeable future, any expansion in citrus production will not come from large tracts of newly planted groves.

Nearly 20 percent of the grapefruit acreage is listed as non-bearing. The higher proportion of non-bearing area for grapefruit can be attributed to the fact that some white seedy and white seed-
less grapefruit trees have been removed and replanted with red and pink seedless varieties.

**Cuba Citrus and the Dissolution of the Soviet Bloc**

During the period of the expansion of citrus production, Cuba exported citrus to the former socialist countries of Europe in a barter arrangement. Cuba would generate credits with its exports and realize debits with its imports which included machinery and oil. The relative valuation of citrus compared to the cost of imported products was such that its “price” was significantly higher than world citrus prices. As stated by one prominent member of the Cuban citrus industry “our fruit was bought, it was not sold.”

With the disintegration of the Socialist Bloc and the resulting financial hardship on the Soviet Union, the barter arrangement with Cuba ended in 1990. The result was a major contraction in the Cuban economy. Between 1990 and 1994, Cuba’s gross national product (GNP) fell by an estimated 50 percent. Citrus production was also adversely affected. Production dropped to 15.2 million boxes in 1993-94 and the estimated production area contracted to 313,500 acres.

While the citrus industry enjoyed a boom in the 1970-90 period, it thrived in isolation from competition from other citrus producing regions. As such, when this isolation ended in 1990, the industry was not able to deal with the realities of competition in free markets. The industry had little marketing expertise and had paid scant attention to post harvest issues. Production and marketing were not well-coordinated.

Soon it was recognized that Cuba’s citrus sector lacked the expertise to compete in the world citrus market arena. The result was a reorganization of the citrus operations allowing for joint ventures with outside investors.

A comparison of Florida and Cuba citrus acreage and citrus trees planted is shown in Table 2. Florida’s total citrus acreage (853,700 acres) and total citrus trees (103.7 million trees) are 3.5 times and 4.3 times greater, respectively, than Cuba’s. Total orange acreage (653,400 acres) and orange trees (81.6 million trees) are over 4.5 times and 5 times greater, respectively, than in Cuba. Likewise, Florida’s grapefruit acreage (146,900 acres) and grape-

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Table 1. Estimated total citrus acres and trees by variety in Cuba, 1993-94.

<table>
<thead>
<tr>
<th>Total land area</th>
<th>Net orchard/grove area</th>
<th>Net tree area</th>
<th>% of total</th>
<th>Total citrus trees</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oranges</td>
<td>183,525</td>
<td>152,326</td>
<td>139,479</td>
<td>89.8%</td>
</tr>
<tr>
<td>Grapefruit</td>
<td>94,972</td>
<td>78,827</td>
<td>72,179</td>
<td>80.3%</td>
</tr>
<tr>
<td>Specialty Citrus</td>
<td>6,777</td>
<td>5,625</td>
<td>5,151</td>
<td>50.0%</td>
</tr>
<tr>
<td>Lemons &amp; Limes</td>
<td>28,316</td>
<td>23,502</td>
<td>21,520</td>
<td>82.2%</td>
</tr>
<tr>
<td>Total</td>
<td>313,589</td>
<td>260,279</td>
<td>238,328</td>
<td>86.1%</td>
</tr>
</tbody>
</table>

Source: Dr. Armando Nova Gonzalez (University of Havana) and Corporation Nacional del citrico (CUBA).
fruit trees (15 million trees) are two times and almost three times
more, respectively, than Cuba’s. Average tree density per acre in Florida is 121 trees whereas in Cuba the average tree density is 100 trees per acre. In Florida’s southern citrus production regions, the tree density averages 145 trees per acre.

**Cuba’s Citrus Production**

Cuba’s citrus production from 1988-89 to 1993-94 is shown in Fig. 3. Total Cuban citrus production peaked in 1989-90 with approximately 25 million boxes of citrus produced. Since 1990, citrus production has declined each year with the 1993-94 total production estimated at 15.2 million boxes. There is some indication that Cuba’s citrus production has stabilized.

Cuba’s 1993-94 estimated total citrus production and utilization is shown on Table 3. Cuba produced 15.2 million boxes of citrus in 1993-94. Approximately 47.1% of the citrus production was exported of which 31.3% was exported as processed juice and 15.8% marketed as fresh citrus exports. The remaining 52.9% was utilized in the domestic fresh fruit market. Oranges (8.6 million boxes) and grapefruit (6.1 million boxes) accounted for almost 97% of total citrus production.

**Recent Changes in the Organization of the Cuban Citrus Industry**

Since the economic collapse of the Cuban economy and the disintegration of the Soviet Bloc, a number of important changes have been implemented in the Cuban citrus industry. These include joint ventures, reorganization of state farms, and evaluation of existing production area.

**Joint Ventures and Economic Associations**

Once the barter arrangement with the former Soviet Bloc countries was modified which resulted in a major decline in the effective price received for Cuban citrus exports, there was a realization that Cuba would have to compete in the Western European market. There was also a realization that the industry lacked the marketing expertise necessary to effectively compete with Florida, Israel, Spain, and other major suppliers to the European market. Thus, Cuban law was modified to allow the formation of joint ventures and economic associations with foreign companies. The major difference between a joint venture and an economic association is that under a joint venture, a new company is formed and the Cuban government and its foreign partner(s) become joint owners of the company. Under an economic association, an exclusive marketing agreement is signed in which Cuba provides fruit and the foreign company provides marketing services. To date, there appears to be little difference in the actual functioning of these two arrangements.

As shown in Table 4, four foreign ventures have been formed in the Cuban citrus industry. The oldest and probably largest foreign presence is the Israeli involvement at Jaguey Grande. Jaguey Grande is the largest state farm for citrus in Cuba. Through the BM Group, a private Israeli company, fresh fruit is packed at Jaguey Grande under the “Cubanita” label and marketed in Western Europe. To date, only fresh grapefruit is being marketed by the Israelis. The Israelis also operate a processing plant at Jaguey Grande in which both oranges and grapefruit are processed. Concentrate juices are marketed primarily in Europe in bulk. There is also a packaging plant at Jaguey Grande which is discussed elsewhere in this paper. The BM Group was involved in Cuban citrus during the 1960’s and then renewed its involvement in 1990. The amount of Israeli capital invested at Jaguey Grande is unknown. There are Israeli technicians at Jaguey Grande providing expertise on grove care, packing plant operation, and in the processing plant.

The Israelis are also involved in the decision to remove existing white seedy and seedless grapefruit trees and replant with red seedless varieties, primarily Star Ruby. We could speculate that given Israel’s success in marketing red seedless grapefruit in Western Europe, they seek to increase red seedless grapefruit supply from Cuba.

In 1991, the Pole Association based in Chile entered into an economic association with the state citrus farm located on the Isle of Youth. Before the revolution, this island was known as the Isle of Pines and is located off the southwest coast of the main island which forms Cuba (see Fig. 2). In the 1950’s, the Lykes Corpora-

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Table 2. Total tree acres and citrus trees by variety in Florida and Cuba, 1993-94.

<table>
<thead>
<tr>
<th>Tree acres</th>
<th>1,000 trees</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Florida citrus industry</strong></td>
<td><strong>Cuba citrus industry</strong></td>
</tr>
<tr>
<td>Oranges</td>
<td>653,370</td>
</tr>
<tr>
<td>Grapefruit</td>
<td>146,915</td>
</tr>
<tr>
<td>Specialty and other citrus</td>
<td>53,457</td>
</tr>
<tr>
<td>Total</td>
<td>853,742</td>
</tr>
</tbody>
</table>

Source: Florida Agricultural Statistics Service, Dr. Armando Nova Gonzalez (University of Havana) and Corporacion Nacional del Citrico (CUBA).
tion had established a significant planting of grapefruit on the island. After the revolution, production expanded and by 1990, there were over 30,000 acres of citrus on the island.

Table 3. Estimated total production and percent utilization of citrus in Cuba, 1993.

<table>
<thead>
<tr>
<th>Production</th>
<th>Domestic</th>
<th>Export</th>
<th>Processed market</th>
</tr>
</thead>
<tbody>
<tr>
<td>MT</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oranges</td>
<td>350,000</td>
<td>64.1</td>
<td>12.8</td>
</tr>
<tr>
<td>Grapefruit</td>
<td>250,000</td>
<td>34.5</td>
<td>21.3</td>
</tr>
<tr>
<td>Specialty Citrus</td>
<td>6,000</td>
<td>100.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Lemons &amp; Limes</td>
<td>14,000</td>
<td>88.1</td>
<td>0.5</td>
</tr>
<tr>
<td>Total</td>
<td>620,000</td>
<td>52.9</td>
<td>15.8</td>
</tr>
</tbody>
</table>

Source: Dr. Armando Nova Gonzalez (University of Havana) and Corporacion Nacional del Citrico (CUBA).

The extent of the involvement of Pole on the Isle of Youth is not known. It is reported that Chilean technicians were present on the Isle of Youth and were likely involved in both citrus production and packing. Fruit was marketed under the Pole label. The Pole Association in Cuba ended in 1995.

A Chilean group, the I.N.G. Company, has formed an economic association with a juice packing facility located near the processing plant at Jaguey Grande. The packing facility packs in tetrapack (aseptic) a wide range of juice products including orange, grapefruit, banana, papaya, and mango under the “Tropical Isle” label. These products are marketed to the tourist sector in Cuba and elsewhere in the Caribbean. The I.N.G. Company’s involvement at Jaguey Grande began in 1992.

The fourth foreign presence in the citrus industry in Cuba was Lola Fruit, S.A., a Greek Company, which formed a foreign economic joint venture at Ciego de Avila in 1993. Ciego de Avila is located near the center of Cuba, east-southeast of Havana. As shown in Fig. 2, there are two state farms located near Ciego de Avila which together have approximately 15,000 acres of citrus. A fresh packing facility and a processing plant are located at Ciego de Avila. Lola Fruit was involved in production, fresh packing, and processing. Lola Fruit primarily marketed fruit in Europe under the Lola label. The Lola Fruit’s joint venture with the Cuban government ended in 1995.

Basic Units of Production Cooperation (UBPC)

A second major step taken by the Cuban government is the reorganization of state farms. Between the mid 1960’s and 1990, large state farms dominated all sectors of agriculture in Cuba. In 1993, there was a decision to break-up some of the large state farms and turn over partial control of these smaller production units to the farm managers and workers. These new units are called UBPC’s or Basic Units of Productive Cooperation.

Based upon our interviews with Cuban government officials, UBPC’s will not operate autonomously, but will be given more decision-making power than under the state farm system. A state company will still operate in proximity to several UBPC’s. The state company will sell inputs such as fertilizer, pesticides, and fuel at state controlled prices to the UBPC. The UBPC manages the grove and conducts the harvest. The UBPC will be obligated to sell fruit to the packing facility operated by the state. It is our understanding that the state will set a quota. Production in excess of the quota may be sold, most likely through a “free” agricultural market where prices are not directly controlled by the government. To our knowledge, the UBPC cannot sell fruit on the export market without dealing with a state-run packing or processing facility.

Evaluation of Existing Citrus Acreage

The third major step taken by the Cuban citrus industry is an evaluation of the existing production area. As shown in Fig. 2, the total land area devoted to citrus in 1990 was over 350,000 acres (273,000 net tree acres). As the citrus industry expanded over a 25-year period from about 30,000 acres to its current size, mistakes were made. The most significant problem was the site selection for planting citrus. Thus, a large proportion of the existing acreage in 1990 was planted on low fertility, lime rock type soils. Another problem was that once the special marketing arrangement with the Soviet Bloc ended, access to low cost fuel and petroleum based inputs such as fertilizer and pesticides was curtailed. Cuba has not developed the domestic capability to produce sufficient quantities of agricultural inputs to meet the demands of its agriculture, hence it must import nearly all of these inputs. With foreign exchange scarce, there was a realization that sufficient inputs would not be available to adequately care for 350,000 acres of citrus.

Thus, a decision was reached to retrench the industry. As reported by Nova (in Spreen, et al.), the plan implemented at Jaguey Grande is typical of the scaling-back of the citrus industry in Cuba. At Jaguey Grande, they have allocated existing groves into three priority classifications.

Priority I: 8,000 hectares (20,000 acres) whose fruit is destined for the export market managed under full grove care.

Priority II: 12,000 ha. (30,000 acres) whose fruit will be processed. Less care compared to Priority I, but focused towards production of adequate juice yields.

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1In Spanish, Basic Units of Productive Cooperation is Unidades Basicas de Produccion Cooperativa or UBPC.

2This statement also includes those packing and processing facilities which have foreign involvement.
The implications of the prioritization of groves include a continued contraction in the land area devoted to citrus. As shown in Fig. 1 there was a small decline in citrus acreage between 1990 and 1994. It is likely that this downward trend has continued although more recent tree inventory numbers are not available. Another implication is the attempt to increase yields on the remaining acres. Citrus yields in Cuba are generally abysmally low, with yields ranging from seven to ten metric tons per hectare. These yields are approximately one-fifth of those realized in Florida, one-half of those observed in Brazil, and lower than the reported yields in Mexico.

**Fresh Citrus Packing**

The fresh citrus packing industry in Cuba began in the 1920’s with fresh citrus exports to the North American market. The packing industry exhibited little growth until the 1970’s when citrus production and export volume increased rapidly. Packing capacity was increased to handle the large volume of fruit being shipped to the Soviet Union and the socialist countries of Eastern Europe. However, since 1990, packinghouse utilization has declined with several packing facilities no longer operating.

Total fresh citrus packing capacity in Cuba is 20.3 million boxes (830,400 metric tons) per year. In 1993-94, only 15% of total packing capacity (3.0 million boxes or 124,560 metric tons) was being utilized. Packing facilities at three citrus production regions account for about 79% of the total fresh citrus packed all of which was destined for the export market. Jaguey Grande packs the largest volume of citrus; both oranges and grapefruit. There are seven packinghouses at Jaguey Grande with a total annual packing capacity of 8.7 million boxes (357,000 metric tons). Approximately 1.76 million boxes (70,200 metric tons) were packed in 1993-94 or 20% of total capacity. Most of Cuba’s grapefruit is packed on the Isle of Youth. Total annual packing capacity at this production region is two million boxes (80,000 metric tons) with 368,000 boxes (15,000 metric tons) packed in 1993-94 or 19% of total capacity. Ariama citrus production region ranks third in fresh citrus packed. Of total packing capacity of 772,000 boxes (31,500 metric tons), 314,000 boxes (12,800 metric tons), or 41% of capacity, was packed in 1993-94. As fresh exports increase, utilization of the packing facilities of these three citrus packing regions is expected to increase.

**Citrus Juice Processing**

Historically, citrus production in Cuba was targeted for the fresh export market. Juice processing was primarily for the utilization of fresh fruit eliminations and juice quality was secondary. However, beginning in 1986-87, juice processing capacity was increased so that higher quality fruit could be delivered directly to the processing plants from the field.

Currently, there are three citrus juice concentrate plants designated for processing oranges and grapefruit. The largest processing plant is located at Jaguey Grande which has 30 extractors and three evaporators with a combined evaporation capacity of 90,000 pounds per hour. On the Isle of Youth, there is one processing plant with 20 extractors and one evaporator with an evaporation capacity of 20,000 pounds. The third processing plant is located at Ciego de Avila which has 20 extractors with an evaporation capacity of 40,000 pounds. All of these plants are capable of producing frozen concentrate of 65° brix for oranges and 58° brix for grapefruit. Essential oils and citrus pulp are produced at these facilities. All juice is exported in 55 gallon drums.

**Concluding Comments**

The citrus industry in Cuba provides valuable export products which are being marketed in the major international markets, primarily Europe. Cuba’s warm climate and early growing season allows early access to the European fresh grapefruit market before other growing areas such as Florida.

The preferential barter arranged prices paid to Cuba prior to 1990 by the former Soviet Union and the socialist Eastern European countries did not reflect the demands of a competitive market system. This market arrangement provided no incentive for high fruit quality, efficiency in fruit handling, and promptness in delivery. After the collapse of the Soviet Union, Cuba found itself ill equipped to compete in the free market international arena.

The lack of market expertise led to a reorganization of the citrus industry in Cuba. Joint ventures and economic associations were formed with foreign companies to provide needed know-how for international marketing. These partnerships are enabling Cuba’s citrus industry to focus on the most productive citrus planting which will lead to higher fruit production through more efficient utilization of limited inputs. Large state farms have been divided into several smaller units and grove management has been decentralized.

Under these new strategies, Cuba’s citrus industry may be able to attain the total citrus production of nearly 25 million boxes achieved in 1990.

**References**

