

Cuba's Food & Agriculture Situation Report

by

Office of Global Analysis, FAS, USDA

March 2008

Table of Contents

	Page
Executive Summary	1
Cuba's Food & Agriculture Situation Report	3
The Historical Context Underlying U.S.–Cuban Relations	3
Economic Background.....	4
Cuba's Natural Resource Base and Demographic Characteristics	8
Population, Food Consumption and Nutrition Issues	14
Tourism and the Demand for Agricultural Products.....	17
Cuba's Market Infrastructure and the Role of Institutions in Cuba's Food and Agricultural Sector.....	18
Cuba's International Trade Situation	29
Other Observations	33
Summary and Conclusions	33
Addendum Current Commodity Sector Situations	36
Sugar	36
Tobacco.....	37
Citrus.....	38
Tropical Fruit	42
Vegetable, Pulse, and Tuber and Root Crops	47
Livestock and Poultry	48
Coffee.....	49
Fishing.....	51
Appendix 1: Summary of Flowcharts on Cuba's Food Supply and Distribution System and the Hard Currency Food Chain: Implications for U.S. Exporters.....	52
Appendix 2: Cuban Agriculture and Food Trade Data.....	60

List of Figures

	Page
Figure 1: In the late 1950s, U.S. interests owned a significant portion of Cuba’s economic resources.	3
Figure 2: A few landowners controlled most of the land in Cuba in the late 1950s.....	4
Figure 3: Cuban economic output fell one-third when the Soviet Bloc collapsed.	5
Figure 4: Cuban trade fell 73 percent when the Soviet Bloc collapsed, then started to rebound as Cuba opened trade with other countries.	5
Figure 5: Cuban agricultural production by 1995 was only about half the level it was at the beginning of that decade.	6
Figure 6: With loss of Soviet Bloc markets, Cuban agricultural exports fell by about half and Cuban agricultural imports fell almost one-third by 1995.	6
Figure 7: Cuba, the largest Caribbean country, is 90 miles south of Florida.	9
Figure 8: About half of Cuba’s land is agricultural and about 46 percent of that land is cultivated. The rest is in permanent crops and pasture.	9
Figure 9: Sugar dominates the use of Cuba’s agricultural crop land, but less now than in the past.	10
Figure 10: Poorly managed natural resources in Cuba have generated an increasingly deteriorating agricultural environment throughout the years.....	11
Figure 11: Cuba faces increasing freshwater problems with growing water usage. Reduced usage in 2000 reflects Cuba’s economic collapse and loss of crop irrigation capabilities.	13
Figure 12: The median age in Cuba is 36, with two-thirds born after the 1959 Revolution.	14
Figure 13: Cuba’s population growth has leveled off and rural population continues to decline.	15
Figure 14: The agricultural share of rural population in Cuba is falling.	15
Figure 15: Cuban caloric consumption fell almost one-third in the immediate aftermath of the loss of Soviet Bloc aid and trade.....	16
Figure 16: Cuba has a unique food supply and distribution system	19
Figure 17: The Port of Havana is Cuba’s major deep water port and the only port that Cuba uses to offload U.S. container shipments.	26
Figure 18: Although imports plummeted when the Soviet Bloc collapsed, food and agricultural imports declined less as Cuba struggled to deal with the resulting catastrophic food storages.....	30
Figure 19: The United States became Cuba’s largest agricultural import supplier in 2002. The U.S. share of Cuba’s market grew from 20 percent in 2002 to more than 36 percent in 2004.	31

Figure 20: For most of Cuba’s history, sugar dominated the island’s agricultural production.	36
Figure 21: Soviet support for Cuba came through purchases of sugar at prices far in excess of world prices, so losing that support was devastating to the Cuban economy.	37
Figure 22: Citrus is a top five agricultural and natural resource export in Cuba.	39
Figure 23: Cuba’s citrus industry collapsed in the early 1990s after the dissolution of the Soviet Bloc.	40
Figure 24: From 1970 to 1989, Cuba’s fresh citrus fruit exports grew rapidly, then plummeted with the Soviet Bloc collapse.	40
Figure 25: Cuba’s fresh and processed citrus exports.	41
Figure 26: Plantains and bananas are the most important tropical fruits and are staples in the Cuban diet.	42
Figure 27: Plantain production has increased more than banana production since 1990.	44
Figure 28: After collapsing in the early 1990s, mango production has recovered and now exceeds 1980s levels.	45
Figure 29: Cuba’s coffee exports rose to about half of the production in the early 1990s, and then fell to about 28 percent of production in the mid-2000s.	50
Appendix 1, Figure 1: Cuba’s food supply and distribution system.	52
Appendix 1, Figure 2: Cuba’s hard currency food chain.	56

List of Tables

	Page
Table 1: Cuba was the fifth most important tourist destination in Latin America in 2006.	17
Table 2: Cuban convertible peso (CUC) official exchange rates	21
Appendix 2, Table 1: Food and agricultural imports became an larger portion of total imports as Cuba struggled to deal with domestic food shortages	60
Appendix 2, Table 2: The United States is Cuba’s largest supplier of agricultural imports	61
Appendix 2, Table 3: U.S. agricultural exports to Cuba.....	64

Cuba's Food & Agriculture Situation Report

Executive Summary

Since 2002, the United States has continued as Cuba's largest supplier of food and agricultural products. Cuba has consistently ranked among the top ten export markets for U.S. soybean oil, dry peas, lentils, dry beans, rice, powdered milk, and poultry meat. Cuba also has been a major market for U.S. corn, wheat and soybeans.

U.S. firms, as a result of the Trade Sanctions Reform and Export Enhancement Act (TSRA) signed into law in 2000, were allowed to sell food and agricultural products to Cuba on a cash basis. Cuba, however, did not begin purchasing from the United States until after Hurricane Michelle had severely damaged its agricultural sector in 2001.

From 2004 through 2006, U.S. agricultural exports to Cuba have averaged more than \$350 million, with the highest value, \$382 million, in 2004. Even with reduced U.S. exports of food and agricultural products to Cuba in 2005 and 2006, the United States has remained Cuba's most important food and agricultural product supplier accounting for more than one-fourth of the country's total food and agricultural imports.

With the collapse of the Soviet Bloc in the late 1980s, Cuba's heavily subsidized sugar industry was not able to compete in international markets and it went through a major contraction. Prior to this contraction, Cuba was the world's third largest sugar producer and largest sugar exporter. Currently, Cuba's sugar industry accounts for only slightly more than 10 percent of the volumes it was producing in the 1980s, and it would take large amounts of investment to rebuild the industry into a competitive sugar producer.

Loss of export earnings from sugar caused major contractions, not only in the sugar industry, but in all sectors of Cuba's economy in the early 1990s. Cuba's loss of its sugar export markets severely limited its export earnings resulting in a significant drop in imports, including agricultural inputs and food imports.

As a result of large declines in domestic food production and food imports, Cuba experienced food shortages in 1993/94. In response to these food shortages, in 1993 Cuba began to implement an unprecedented set of reforms in agriculture that included breaking up most large state farms into production cooperatives and opening farmers markets where farmers could sell surplus output (production beyond quotas they had to sell to the state) at free market prices. These market-oriented policy changes resulted in gradual recovery in non-sugar agriculture. Nevertheless, most food crops during the past three years have shown declining output trends. Cuba has become increasingly reliant on food imports to feed its people.

Cuba's total food and agricultural imports almost doubled between 2000 and 2006.

The United States now supplies about 30 percent of Cuba's food and agricultural import requirements. This share has fallen from 36 percent in 2004, when Cuba imported more food and agricultural products from the United States and fewer total food and agricultural products overall.

Declining trends in Cuba's domestic non-sugar agricultural production suggest that agricultural imports will continue to be important for feeding the Cuban population in the short to medium term, and will increase moderately.

Cuba has many advantages when purchasing food and agricultural products from the United States that include quality and price considerations, the geographic proximity of U.S. and Cuban ports that results in lower shipping costs, shorter lead times for orders, very short transit times (particularly important for purchases of perishable agricultural products), and lower economic order quantities resulting in fewer domestic storage issues in Cuba.

Cuban officials have acknowledged that there are perceived political advantages to purchasing food and agricultural products from the United States.

Despite these advantages, Cuban officials at *Alimport* (Cuba's agency handling U.S. food imports) recognize that, although U.S. firms are reliable trading partners with quality products at competitive prices, their ability to service the Cuban market may be detrimentally impacted by U.S. policy. Therefore, they are somewhat apprehensive about allowing the United States to provide a significantly larger proportion of Cuba's food import requirements.

U.S. exports to Cuba are mainly soybeans and soybean products, corn and corn products, wheat and wheat products, rice and poultry meat. High-value food product exports have increased their share of total U.S. exports somewhat in response to growth in Cuba's tourist arrivals.

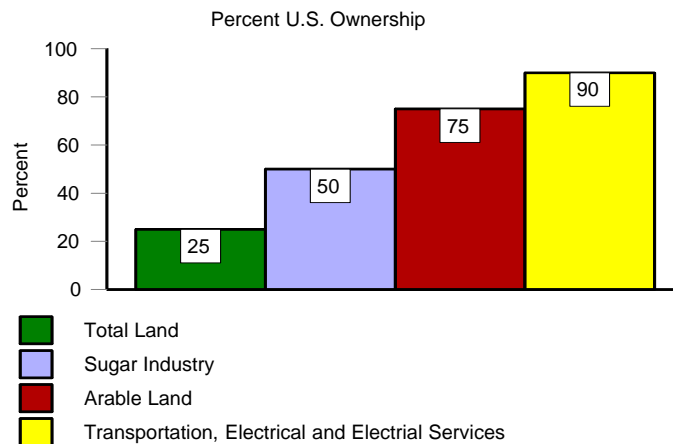
Cuba's Food & Agriculture Situation Report

The Historical Context Underlying U.S.–Cuban Relations

The evolution of Cuba's political and economic structure has been intricately tied to both a long-held desire for Cuban independence and to a long history of foreign influence. These foreign influences include Spain for most of the 18th and 19th centuries, followed by the United States in the late 19th century and the first half of the 20th century and the former Soviet Union from the 1960s through the 1980s.

The period from the Spanish-American War (1898), when Cubans won their independence from Spain, to the start of the Castro era in 1959 was characterized by a large U.S. economic presence and influence. By the late 1950s, U.S. interests owned a significant portion of Cuba's resources: 25 percent of Cuba's land (75 percent of the arable land), 50 percent of the sugar (and rum) industry, and 90 percent of the transportation and electrical services, plus significant cattle, tobacco, timber, banking, oil, and mining interests [fig.1]. Beginning in the mid-1940s, U.S. organized crime controlled much of the tourist hotel and casino industry.

Figure 1: In the late 1950s, U.S. interests owned a significant portion of Cuba's economic resources.

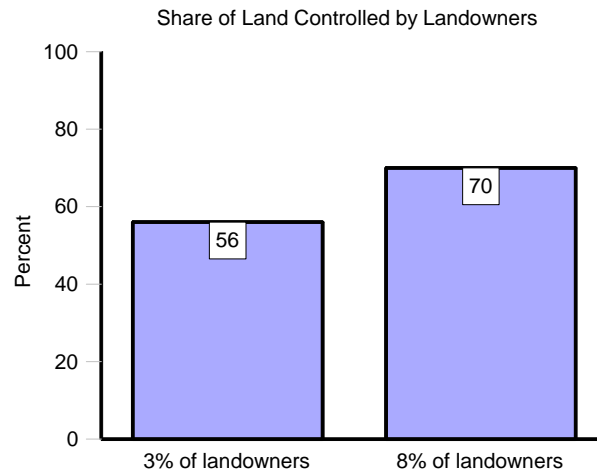


Fidel Castro, among others, opposed the dictatorship of Fulgencio Batista from its beginning in 1952 and led a revolutionary fight against the dictator. On New Year's Eve of 1958, Batista resigned and fled the country, and Castro assumed control of Cuba.

The Castro government quickly began implementing many of Castro's long-promised economic development programs, which emphasized agrarian reform, industrialization, economic diversification, public works programs, and educational reform.

Relations with the United States soon deteriorated as the Castro government began breaking up economic resource concentration in Cuba [fig.2] and nationalizing much of Cuba's economy. What followed was a series of partially retaliatory policy initiatives on the part of the two countries, culminating in a total U.S. embargo of Cuba in 1962.

Figure 2: A few landowners controlled most of the land in Cuba in the late 1950s.



Economic Background

The Cuban Economy Under Castro. Throughout the Cold War period, Castro strengthened the socialist structure of the Cuban economy. In the early years after the Revolution, Cuba consolidated expropriated land holdings into huge state farms and attempted to diversify agricultural production away from the traditional sugar monoculture. But sugar eventually proved to be the key mechanism for the Soviets to provide economic support for the new Castro government through purchases of huge volumes of Cuban sugar at prices far in excess of world prices. Although subsidized sugar prices allowed Cuba's sugar industry to remain an important player in the global sugar market, they also permitted the Cuban sugar industry to develop into an immensely inefficient system with production costs far in excess of most major world sugar producers.

The collapse of the Soviet Bloc threw Cuba's entire economy into disarray:

- Cuba lost its major markets and primary source of foreign assistance.
- The loss of cheap Soviet oil triggered a Cuban energy crisis.
- Without massive subsidies, Cuba felt the full consequences of 40 years of resource misallocation and heavily subsidized, inefficient production.
- Cuba faced severe shortages throughout all sectors of its economy.
- Cuban economic output fell by one-third [fig. 3].
- Cuban foreign trade fell by 73 percent [fig.4].

- Agricultural production fell by 54 percent [fig. 5].
- Agricultural exports fell by more than one-half [fig.6].
- Agricultural imports fell by almost one-third [fig.6].

Figure 3: Cuban economic output fell one-third when the Soviet Bloc collapsed.

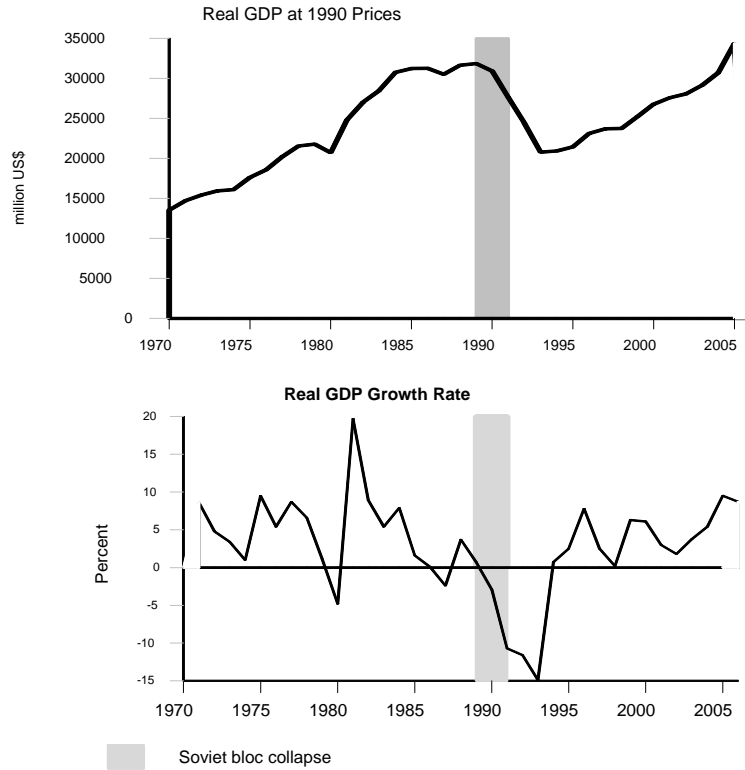


Figure 4: Cuban trade fell 73 percent when the Soviet Bloc collapsed, then started to rebound as Cuba opened trade with other countries.

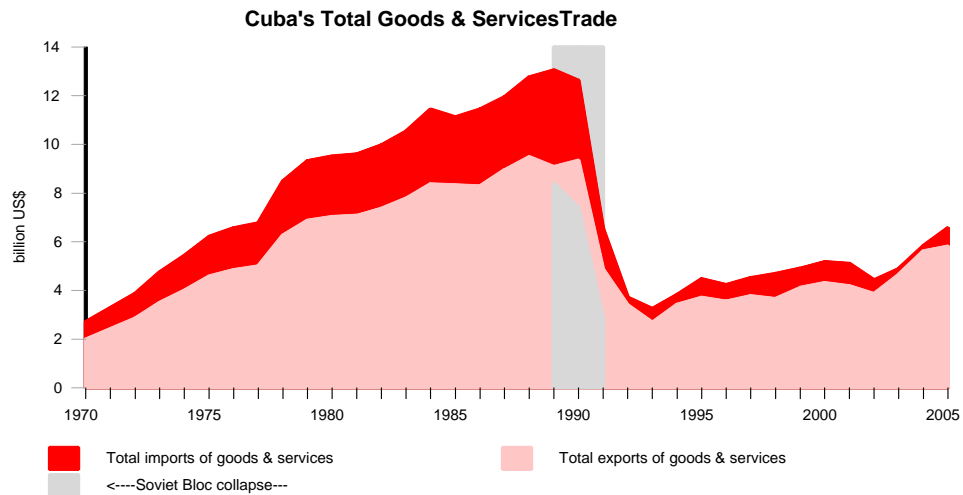


Figure 5: Cuban agricultural production by 1995 was only about half the level it was at the beginning of that decade.

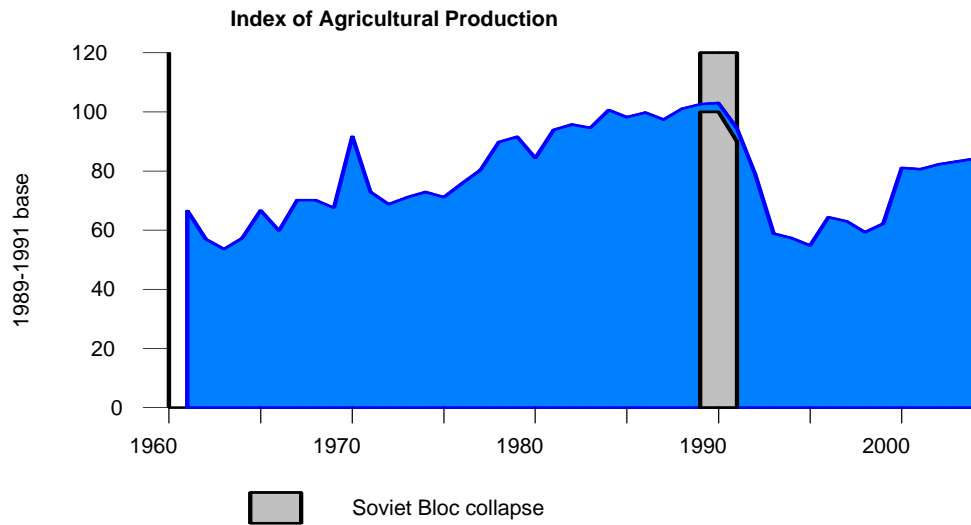
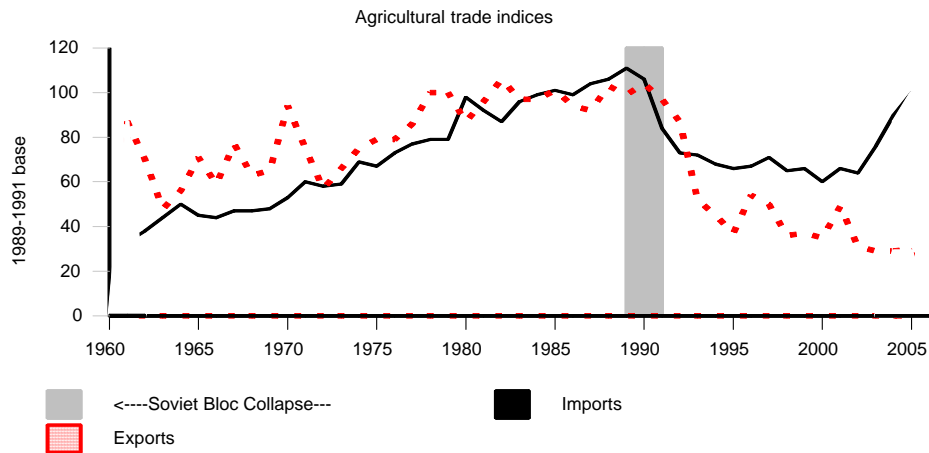


Figure 6: With loss of Soviet Bloc markets, Cuban agricultural exports fell by about half and Cuban agricultural imports fell almost one-third by 1995.



In response to this crisis, the Cuban government announced an economic austerity program known as the “Special Period in Peacetime” (or *Special Period*). As part of this program, the Cuban government:

- pursued more open trade with other countries, and
- made limited policy adjustments to allow markets to operate within tight constraints, including:
 - » allowed Cuban citizens to hold and spend U.S. dollars,
 - » allowed self-employment in a limited number of fields, and
 - » allowed establishment of restaurants in individual homes (*paladares*).

The most market-oriented policy adjustments, however, occurred in agriculture, which dramatically changed the structure and function of Cuba's agricultural sector and its food distribution systems.

In 1993, the Cuban government began to break up large, input-intensive State farms into a new form of agricultural production cooperative known as the Basic Unit of Cooperative Production (*Unidades Basicas de Producción Cooperativas*, or UBPCs). While land title remained with the state, these cooperatives had usufruct access to farm the land. Their ability to make production and resource decisions remained limited, because state enterprises still dictated what commodities they would produce and provided food collection, transportation, and other production services, and agricultural inputs (to the limited extent they remained available). Farmers also were allowed to establish self-provisioning plots where they could grow food for their own consumption.

Agricultural workers welcomed this policy change with great enthusiasm, but food availability remained a critical problem. Black market food transactions were rampant and were conducted only in U.S. dollars. Citizens without access to dollars from overseas family remittances or from tips earned working in the growing tourist sector were unable to access these black market food supplies. In 1994, food shortages reached a crisis level for those without access to hard currency. In response, the government opened farmers markets (*Mercados Agropecuarios* or MAs) where farmers could sell surplus production (beyond state-mandated quotas) at free market prices, but where all transactions were conducted in pesos. By 2000, these farmers markets handled 25 to 30 percent of the farm products available to Cuban consumers.

By 1996, these reforms had generated a 17.3 percent rise in non-sugar agricultural production. Production remained hampered, however, by a lack of production inputs. With little fuel, fertilizer, pesticides, and herbicides, farmers were forced to adopt a more organic approach to production. In many areas, draft animals replaced tractors.

Even with production starting to rebound, processing and other logistical problems continued to hamper the movement of food supplies to urban population centers. With continuing food shortages, urban residents were forced to grow some of their own food. The government encouraged this process by starting an urban agriculture program that fostered both private and commercial gardens on underutilized urban land to supplement the food available in urban areas from the commercial agriculture sector. These gardens were labor intensive. They emphasized an organic, sustainable-agriculture approach to food production. These efforts were reasonably successful in increasing urban availability of fresh vegetables, roots, tubers, plantains, and non-citrus tropical fruits.

Cuba also looked to foreign investment for needed resources to keep businesses running and to modernize and expand targeted industry sectors (tourism, mining, telecommunications, manufacturing, construction, and agriculture). With domestic demand largely limited to the tourist sector and without access to the nearby U.S. market, there were few incentives for investment in production of perishable agricultural crops. Only about 10 percent of the approximately \$1 billion of foreign investment was in agriculture (primarily in citrus, tobacco, and food processing).

By 1995, Cuba's economy was showing signs of slow recovery. The government responded by tempering its limited movement toward a more market-oriented and incentive-based economy with a periodic re-imposition of tighter state controls. The opening of Cuba's economy was driven by economic necessity and was constrained by the government's desire to maintain the socialist state. Market-force incentives were allowed to operate only when absolutely necessary but Fidel Castro frequently referred to such policies as a threat to Cuba's egalitarian objectives and its socialist ideals.

Despite the fact that Cuba's economy and its non-sugar agriculture stabilized and demonstrated limited growth after a period of difficult adjustment, Cuba's sugar industry remains a shambles. Although Cuba's sugar industry is no longer dominant, agriculture continues to play an important role in the economy.

The Post-Soviet Era and U.S. Policy. In the years following the collapse of the Soviet Bloc, the U.S. government implemented a number of legislations affecting U.S. policy toward Cuba. In political or administrative terms, the most significant change may be the 1996 Cuban Liberty and Democratic Solidarity Act (the Libertad Act, or the Helms–Burton legislation). One particularly important provision of this legislation codified the U.S. embargo into law. Before this, the embargo had been an executive order that could have been lifted by any U.S. President. Now lifting the embargo requires both congressional and presidential approval.

In economic terms, the most important U.S. legislative initiative related to Cuba was the Trade Sanctions Reform and Export Enhancement Act (TSRA) of 2000. This legislation permitted the sale of food (and medicine) to Cuba by U.S. firms, enabling Cuba to be among the top 30 most important U.S. agricultural export markets in the past few years.

Cuba's Natural Resource Base and Demographic Characteristics

Geography. Cuba is 90 miles south of Key West, Florida. It is the largest Caribbean country, with flat to rolling plains surrounding three mountain ranges: the Sierra de los Organos in the west, the Sierra del Escambray in the center of the island, and the more rugged hills and mountains of the Sierra Maestra in the southeast. Plains cover about 70 percent of the land.

From a land area, population, or agriculture perspective, Cuba dominates the Caribbean [fig. 7]. Cuba has almost as much land area as the rest of the Caribbean islands combined; at 11 million hectares, it is almost the size of Ohio or about three-fourths the size of Florida.

Climate. Cuba's tropical climate is moderated by trade winds. The average temperature ranges from 71.6 degrees Fahrenheit (F) in the winter to 77 degrees F in the summer. It has a dry season from November to April and a rainy season from May to October. Rainfall averages 1,515 mm, with more than three-fourths of that falling in the rainy season. Cuba is susceptible to hurricanes and a series of these storms since 2001 has done significant damage to agriculture in Cuba.

Figure 7: Cuba, the largest Caribbean country, is 90 miles south of Florida.



Land. Over the last 20 years about 60 percent of Cuba’s land has been classified as agricultural. In the mid 1990s about 65 percent of that agricultural land was in crops and the rest in natural pasture [fig. 8]. In the 1990s, almost 60 percent of cultivated land was in sugarcane [fig. 9]. Recently, large tracts of land have been taken out of sugarcane production, much of which is now classified as natural, unimproved pasture.

Figure 8: About half of Cuba’s land is agricultural and about 46 percent of that land is cultivated. The rest is in permanent crops and pasture.

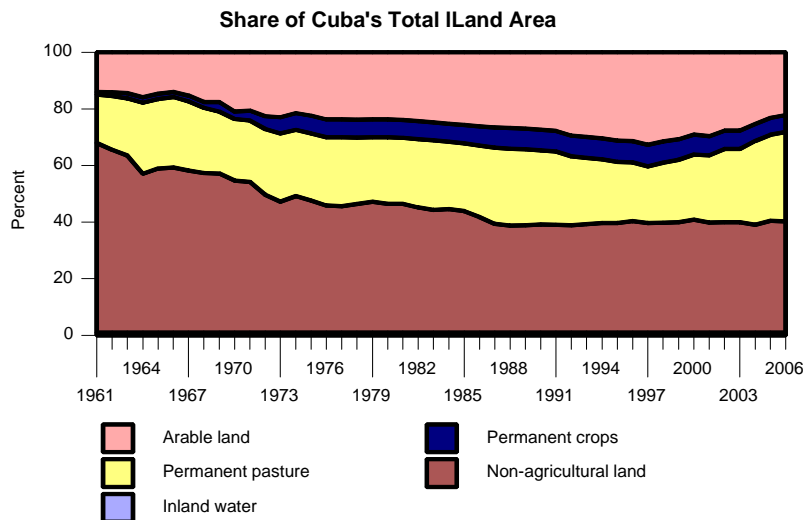
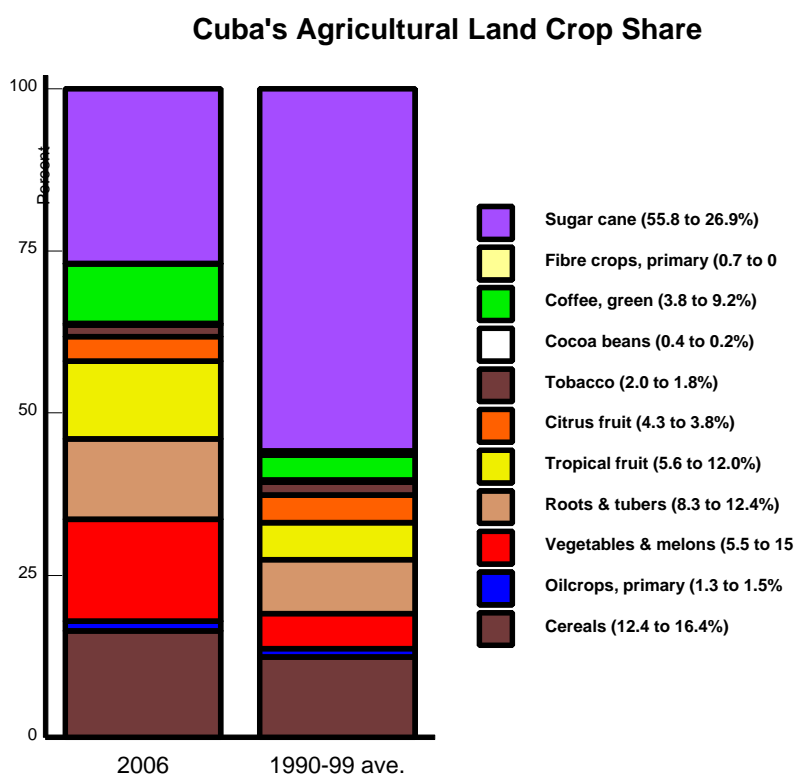


Figure 9: Sugar dominates the use of Cuba’s agricultural crop land, but less now than in the past.



Rice and maize are the principal cereals grown in Cuba. Major oil crops are groundnuts and coconut. With a tropical climate and a year-round growing season, many varieties of fruits and vegetables are grown. Roots and tubers and tropical fruits are staple foods in the Cuban diet. Oranges and grapefruit are the most important commercially grown citrus fruits.

Around 20 percent of tilled land is irrigated. Most irrigated land is on state farms or on land that was formerly state farms.

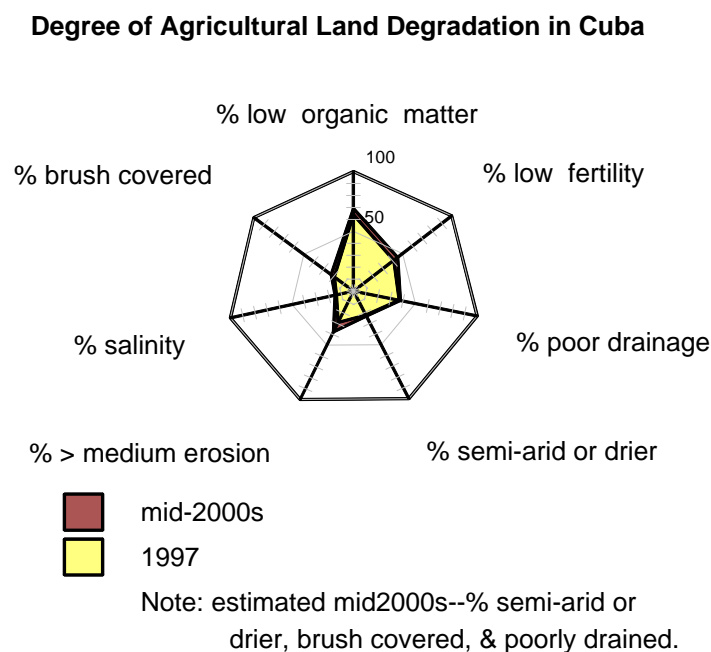
Poorly managed natural resources in Cuba have generated a deteriorating agricultural environment. A 1997 report stated that:

- 11 of Cuba’s 14 provinces showed symptoms of desertification,
- 14 percent of Cuban soil contained excess sodium,
- more than 1.5 million hectares of Cuba’s land could be classified as arid, semi-arid, or sub-humid and dry,
- 29 percent of Cuba’s agricultural land exhibited erosion,
- 37 percent of the agricultural lands were poorly drained,
- 41 percent of the agricultural lands had fertility deficiencies,
- 64 percent of Cuba’s agricultural land had insufficient organic matter, and
- more than 1.3 million hectares were brush covered.

Conditions have worsened more in the past decade [fig. 10]. A Cuban agronomist recently wrote that:

- 75 percent of Cuba’s farmland is degraded to some degree,
- about 3 million hectares (45 percent) are low in fertility,
- about 4.6 million hectares (69 percent) are low in organic matter,
- about 1 million hectares (15 percent) suffer from salinity problems, and
- about 2.5 million hectares (37.6 percent) exhibit medium to severe erosion effects.

Figure 10: Poorly managed natural resources in Cuba have generated an increasingly deteriorating agricultural environment throughout the years.



Mineral Resources. Cuba’s mineral resources contribute significantly to export earnings, with nickel mining and production being the primary contributor. Cuba’s nickel reserves are the world’s fourth largest and reserves of nickel-bearing laterites are the world’s largest. Cuba ranks sixth in mine production of nickel.

In addition, cobalt, a byproduct of nickel mining and refining, is also an important mining industry component. Cuba produced about 7 percent of world mine production of cobalt in 2000 and ranked sixth in world production. Cuba also produces limited amounts of other minerals, including asphalt, cement chromite, copper, feldspar, natural gas, gold, gypsum, iron and steel, kaolin, lime, nitrogen, petroleum, salt, sand, silica/industrial sand, stone, and sulfur.

Although mineral production is controlled by the Cuban government, recent changes in mining and foreign investment regulations have led to an increase in the number of joint ventures between the Cuban government and foreign private companies. Many of these enterprises are involved in mining, exploration, and processing Cuba's mineral and petroleum natural resources.

Petroleum. Prior to the embargo, U.S. oil companies undertook preliminary oil exploration with limited success. Before such activity could come to fruition, the Castro government nationalized the U.S. refineries. The first major oil find in Cuba, the Varadero oil field, east of Havana, came in 1971 with Soviet assistance. Although Cuba produced a limited amount of oil, it relied heavily on subsidized imports of Soviet Bloc petroleum. When Soviet subsidized petroleum product exports were no longer available, Cuba was forced to reorganize its highly industrialized, petroleum-based economy and agriculture to more sustainable operations requiring minimal petroleum inputs. This was particularly true for food production. Cuba increased domestic petroleum exploration and production and opened its oil industry to foreign investment in 1993. Since that time, companies from Canada, Spain, Norway, India, Malaysia, and China have been involved in onshore drilling or onshore horizontal drilling to reach the oil and gas located beneath Cuba's shallow coastal waters.

More recently, the Cuban economy has benefited from subsidized petroleum imports from Venezuela. Venezuela now provides more than half of the Cuban oil consumption. The Venezuelan state-owned oil company PDVSA (Petróleos de Venezuela, SA) is also helping Cuba modernize its dilapidated Soviet-era refineries and other oil facilities.

With rising oil prices, there has been increasing interest in exploring Cuba's offshore waters to tap into potential oil reserves there. Based on available geological data from recent years, the U.S. Geological Survey estimates that Cuban offshore untapped reserves could hold 4.6 to 9.3 billion barrels of oil and 9.8 to 21.8 trillion cubic feet of natural gas. Offshore wells to tap these reserves could be as close to the United States as 60 to 70 miles from Key West (the 1977 U.S.–Cuba maritime treaty agreed to evenly divide the waters between the two countries).

Water. Cuba faces water problems. As is the case for all island countries, Cuba cannot rely on freshwater inflows from neighboring countries to replenish aquifers. Even with abundant annual rainfall, Cuba can suffer freshwater shortages in dry seasons. Cuba is a long, narrow island with few large rivers and limited surface water. Freshwater aquifers also have become increasingly susceptible to heavy mineral concentrations, pollution and salt water intrusion in coastal areas.

Cuba has experienced a drought cycle in recent years that is reportedly one of the worst in its history. The drought situation became so severe that in 2005 the World Food Program launched food aid operations in Cuba to assist the most severely affected segments of the population in Cuba's eastern and central provinces. Drought conditions subsided in 2005, and rainfall patterns since that time have been more typical.

Cuba's biggest water problem has been a freshwater withdrawal rate that is one of the highest in the Caribbean (23 percent in 1975). There was a substantial increase in freshwater usage from 1975 to 1990 primarily due to the increasing emphasis on agricultural irrigation, particularly for such heavy water-consuming agricultural crops as sugarcane and rice. In response, the

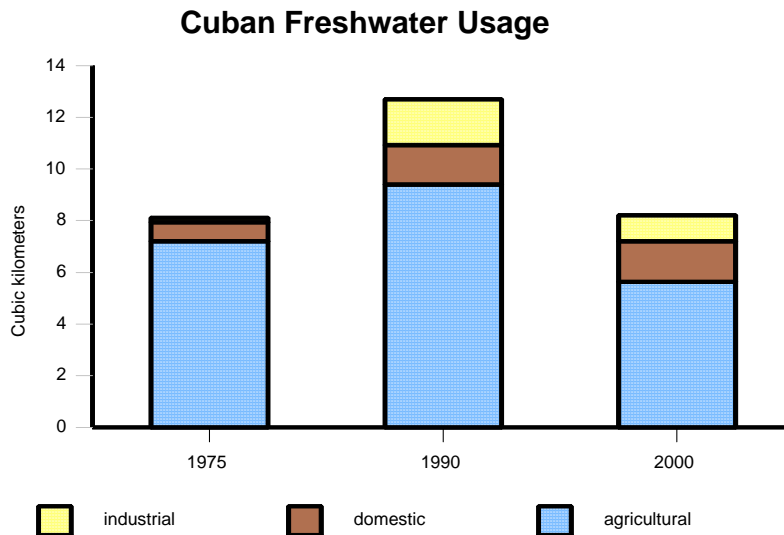
government instituted major dam, reservoir, and urban aqueduct construction programs to meet increased freshwater demand and to replenish existing aquifers. Had the stock of freshwater remained constant, Cuba's freshwater withdrawal rate in 1990 likely would have risen to an unsustainable rate of about 36 percent. It is unclear how much this increased demand has been offset by government conservation programs. Cuba, however, clearly continues to face water problems. The declines in water usage between 1990 and 2000 reflect Cuba's economic decline following the Soviet Bloc collapse, particularly the loss of crop irrigation capabilities [fig. 11].

These water problems are further exacerbated by Cuba's long history of deforestation. In 1812, Cuba was 90 percent covered with forest, but by 1975, coverage had shrunk to 18 percent. Most of the remaining forests are in inaccessible mountainous and swampy coastal areas. In recent years, the government has instituted a series of reforestation programs that have been only moderately successful.

One of Cuba's best water-based natural resources is its numerous beaches, reputed to be some of the best in the Caribbean. The island is narrow and 1,200 kilometers long, with an irregular coastline of 5,746 kilometers. It has more than 200 bays and more than 300 natural beaches, plus numerous port cities.

Another Cuban water-based resource is the abundance of fish and other marine species found in its coastal waters. Cuba's near-shore waters also contain many pristine coral reefs.

Figure 11: Cuba faces increasing freshwater problems with growing water usage. Reduced usage in 2000 reflects Cuba's economic collapse and loss of crop irrigation capabilities.

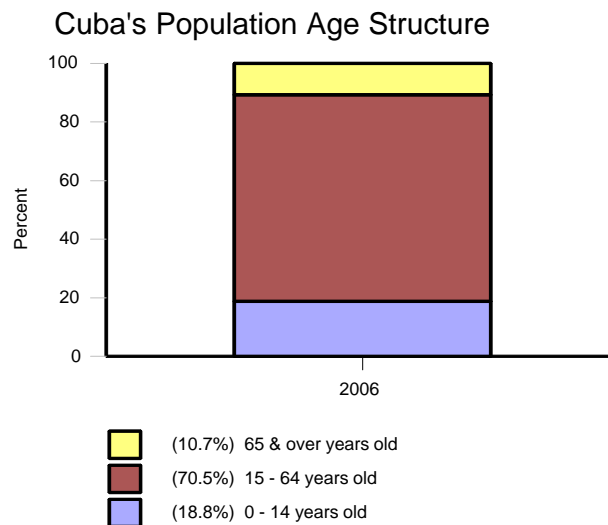


Population, Food Consumption and Nutrition Issues

Cuba has a population of about 11.2 million. Between 1960 and 1990, the population growth rate had been about one percent annually. Since 1990, Cuba's population has grown only at about 0.3 percent per year, reportedly in response to the economic and societal pressures of Cuba's *Special Period*. A recent report by the Cuban government indicated that the population actually decreased slightly between 2005 and 2006 due to a drop in birth rates. Cuban government population projections show continued decreases through 2020; thus it is unlikely that Cuba's population will ever reach 12 million without decreased emigration, increased immigration or changes in levels of economic prosperity that might once again support increased birth rates.

The median age in Cuba is 36, but the past 15 years have seen some aging of the population as the birth rate has declined and life expectancy has increased. The number of people above the age of 64 is now about 11 percent [fig. 12]. Average life expectancy in Cuba is 77 years, very close to that of many developed nations. Cuba's infant mortality is one of the lowest in Latin America (6 deaths per 1,000 live births). This is partly attributable to Cuba's extensive and free health care although the medical system labors with limited and outdated equipment, as well as with frequent medicine shortages.

Figure 12: The median age in Cuba is 36, with two-thirds born after the 1959 Revolution.



Cuba's population was about half rural and half urban in the 1950s. During the past four decades, the rural population has declined about 0.6 percent annually while the urban population has grown about 2.0 percent annually. Currently, the rural-urban population ratio is about one-fourth rural and three-fourths urban [fig. 13]. About 87 percent of Cuba's rural population was engaged in agriculture in 1960; in 2000, that share had fallen to about 66 percent [fig. 14].

The Castro regime has always emphasized social services. Cubans are well-educated, with a literacy rate exceeding 95 percent. Education is free at all levels. As a result of this social

services emphasis, Cuba's population profile more closely resembles that of developed countries than that of developing countries.

The declining birth rate in Cuba is reportedly an outgrowth of the economic pressures of the *Special Period*, including challenges that families regularly face in obtaining enough food. Much of the food Cubans consumed before the 1990s was produced on Cuba's large state farms and imported from the Soviet Union and Eastern Europe.

Figure 13: Cuba's population growth has leveled off and rural population continues to decline.

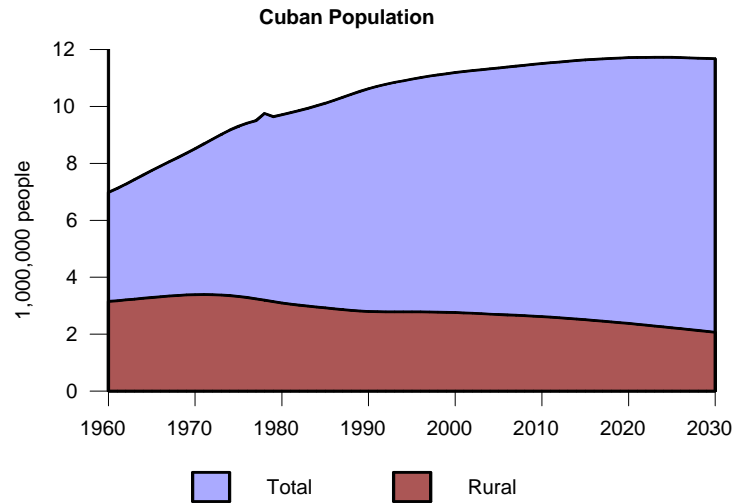
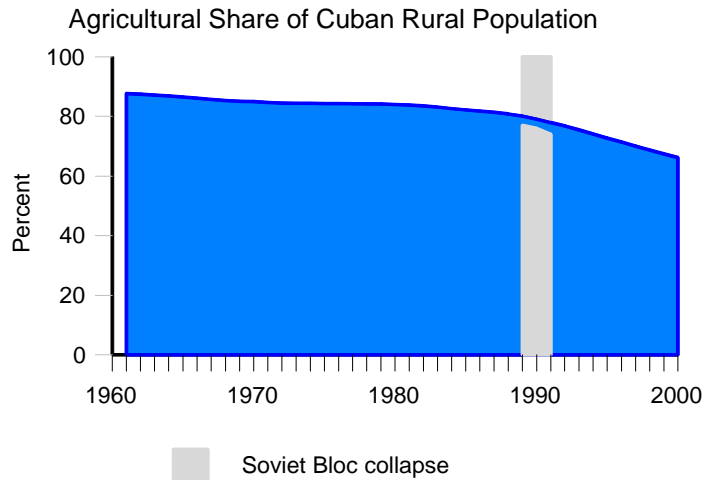


Figure 14: The agricultural share of rural population in Cuba is falling.

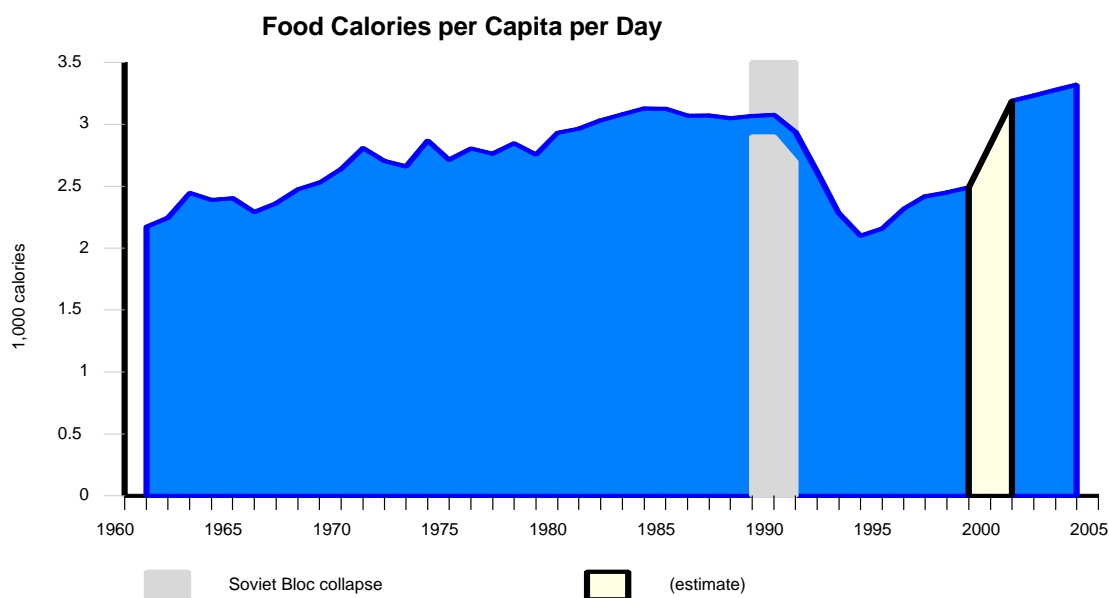


From 1985 to 1989, according to United Nations Food and Agriculture Organization data, the average Cuban was consuming more than 3,000 calories per day. Food consumption and nutrition levels dropped rapidly and substantially in the early 1990s following the loss of Soviet

economic assistance and subsidization as Cuba's agricultural production plummeted and its ability to import foodstuffs also collapsed.

Daily caloric consumption fell from 3,052 calories per day in 1989 to 2,099 calories per day in 1993 [fig. 15]. Other reports indicate caloric consumption fell to an even lower 1,863 calories per day. (The recommended minimum is 2,100–2,300 calories per day.) For those most dependent on state rations, the very old and the young, some estimates indicate that consumption fell to 1,450 calories per day.

Figure 15: Cuban caloric consumption fell almost one-third in the immediate aftermath of the loss of Soviet Bloc aid and trade.



In recent years, per capita caloric consumption has gradually recovered to the pre- *Special Period* level (around 3,300 calories/capita/day in 2005). Sources of caloric consumption, however, have changed significantly. Prior to the *Special Period*, animal products accounted for 690 calories, or about one-fourth of total caloric consumption. In recent years, calories from animal products have fallen to roughly half the level of the late 1980s because the Cuban government did not have the resources to revitalize the livestock sector nor sufficient foreign exchange to import animal products. Although Cubans have learned to grow vegetable products on small private farms and urban gardens, Cuba is still short of meat, milk, and other animal products.

A World Food Program (WFP) study in the early years of the *Special Period* highlights the inability of Cuba to restore food availability to pre-1990 levels in all areas of the country. WFP found population groups in five eastern provinces showed serious nutritional deficiencies. Daily average energy consumption in the provinces of Las Tunas, Holguin, Granma, Santiago de Cuba, and Guantanamo in 1993 was only 65 percent of the average consumption recorded in 1989.

Under a development project scheduled to end in December 2007, the WFP provided imported food valued at \$21 million for young children and expectant mothers. The fortified food is being produced locally from wheat flour, rice, vegetable oil, and edible fat supplied by WFP.

Also, affecting food consumption is the projection that by 2025, about one-fourth of the Cuban population will be elderly.

Tourism and the Demand for Agricultural Products

During the past 15 years, Cuba has become an increasingly important Caribbean vacation destination. Despite the inability of U.S. citizens to travel as tourists to Cuba, in 2006 an estimated 2.1 million tourists visited Cuba, mostly from Canada or Europe. This ranks Cuba as the fifth most important Latin American tourist destination, and it represents more than 10 percent of all tourist arrivals in the Caribbean [table 1]. The tourist industry generated gross earnings of \$2.4 billion for the Cuban economy in 2006.

Table 1: Cuba was the fifth most important tourist destination in Latin America in 2006.

Top Five Latin American Tourism Destinations in 2006		
Rank	Country	Million Tourists
1	Mexico	21.9
2	Brazil	5.3
3	Dominican Republic	3.7
4	Argentina	3.5
5	Cuba	2.1

In the early 1990s, when the Cuban tourism industry was just reviving, only about 300,000 tourists visited the nation and earnings were only \$240 million. The explosive growth in Cuban tourism during this relatively short time period reflects a rate of expansion in tourism rarely experienced anywhere in the world.

In the early 1990s, only about 12 percent of the products and services for the tourism trade were provided through domestic production, with the balance being imported. Nearly all of the food products, beer, and bottled water needed for tourist hotels and restaurants were imported. Today, through a combination of policies to stimulate domestic production and assistance from foreign firms and investors, this factor has been significantly improved. Now between two-thirds and three-quarters of Cuba’s tourist hotel and restaurant needs are met through national production. Some high-value food products continue to be imported, however, for the tourist trade.

The Cuban entity *Comercializadora ITH, SA* (ITH) is the principal importer of supplies for tourist hotels and restaurants. Operating under the Ministry of Tourism, ITH imports for the government-owned hotels and tourism holding companies, mixed-enterprise joint ventures, and for individual hotels and restaurants. ITH can contract for and import products directly from companies throughout the world *except* in the case of purchases of food products from U.S. firms; all of these purchases from U.S. firms are handled by the Cuban company *Alimport*

(*Empresa Cubana Importadora de Alimentos*). The operation of *Alimport* and a review of the trade data for agricultural and food imports are discussed further in later sections of this report.

More than one-quarter of Cuba's tourist arrivals are from Canada. Britain recently became Cuba's second largest market. Spain, Germany, Italy, and France also are important sources for tourists traveling to Cuba. Cuba's nine international airports and daily flights from most of these markets have helped fuel the growth of Cuba's tourism industry.

Advertising for Cuba tourism tends to focus on "sun and sand" vacations although there are many important historical sites and natural areas other than the beaches. Initially Cuban vacations were promoted on the basis of their relatively low cost. This has changed somewhat in recent years as data suggest that tourists are beginning to spend more per day in Cuba.

To accommodate the growth of Cuban tourism, the number of hotel rooms has more than doubled in the past decade, largely through foreign investment, and is reportedly approaching 50,000 rooms. Cuban sources estimate that between 6.2 and 7.0 million tourists will be visiting Cuba by 2010, spending between \$10 and \$12 billion, and that there will be more than 150,000 hotel rooms in Cuba by the end of the decade to accommodate this growth. Industry analysts outside of Cuba generally consider these estimates to be overly optimistic.

No data are available on the types or proportion of foodstuffs imported for the hotel and restaurant trade in Cuba. Continued growth of Cuba's tourism industry would be expected to drive increases in Cuba's purchases of high-value, consumer-oriented, and bulk food products for the hotel and restaurant trade in Cuba. This has the potential to translate into increased U.S. food and agricultural product exports to Cuba.

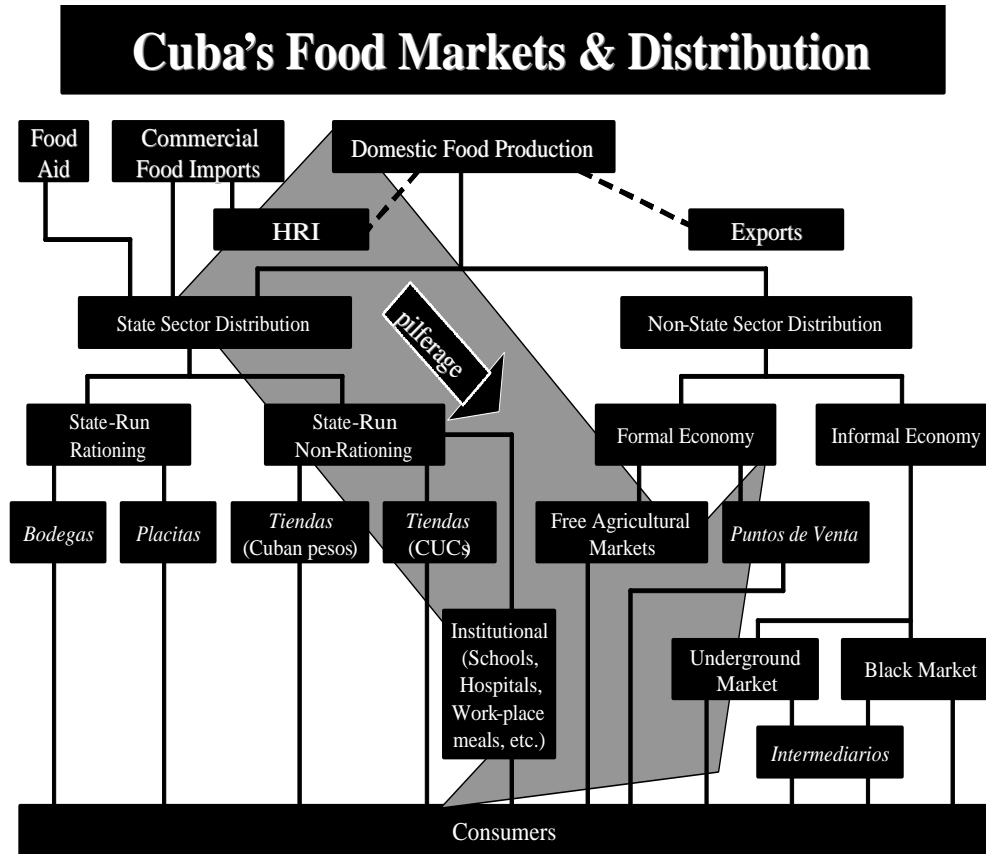
Cuba's Market Infrastructure and the Role of Institutions in Cuba's Food and Agricultural Sector

Cuba's Domestic Market Infrastructure. Since 1959, Cuba's economy has been shaped by agrarian reform laws, subsidized salaries and social services, heavy centralized planning and state control, and shifts in economic and political relations, first with the United States and later with the former Soviet Union. The dissolution of the Soviet Union in 1991 and the sudden loss of generous Soviet economic support and subsidies generated an economic shock to the Cuban economy that many predicted the Cuban government could not survive. But it did survive, although this shock drove a series of reforms unprecedented in the post-revolutionary period, including allowing the circulation and use of U.S. dollars, policies to better integrate Cuba's economy into the global marketplace and to increase foreign investments and tourism, limited forays into market-oriented reforms (Cuba's free agricultural markets), and private enterprise (through self-employment in a limited number of licensed activities). As a result, Cuba has developed a food supply and distribution system that is unlike that of any other country in the world, with a food rationing system complemented by a complex array of state and non-state food markets and purchasing channels.

Figure 16 is a flowchart depicting the relationships between the various outlets and channels within Cuba's food distribution and marketing systems, which this paper will briefly discuss.

Note that this flowchart describes the systems for satisfying Cuba's food requirements for human consumption. Domestic agricultural production and imports for use as animal feed, for example, would move through a different set of channels.

Figure 16: Cuba has a unique food supply and distribution system.



Agricultural and food products entering Cuba's food market system are supplied by domestic production and imports. Although Cuba purchases some of its agricultural and food imports, other supplies are provided by food aid programs from the European Union, the United Nations World Food Program (during severe drought in eastern Cuba), and other sources. A portion of the food products imported move directly into the Cuban Hotel, Restaurant and Institutional (HRI) sector.

Although the vast majority of Cuba's domestic agricultural and food production is used for domestic consumption, portions are directed to HRI trade and export markets. Domestically produced food products moving into HRI trade and export markets are increasingly produced on farms or in processing facilities with significant participation by foreign investors under joint venture arrangements with the Cuban government. Products supplied to the HRI sector and exported include citrus products, shellfish, cigars, coffee, and rum.

Domestic outlets for food supplies are divided into two primary channels: the state sector and the non-state sector. All but Cuba's very smallest private farmers have a quota that they are required to sell to the government's food collection agency, *Acopio*. They are paid, in pesos, a

small amount for these quota sales and they also may receive very limited volumes of fertilizers and chemical inputs for having satisfied their quotas.

These quota food stuffs are then moved through the state sector distribution system and its variety of markets and outlets. One of the most important of these channels is Cuba's ration system, which is composed of what are known as *bodegas* and *placitas*. The Cuban ration system was established by the Castro government to help ensure an adequate food supply for all citizens. Under this system, Cuban families have a ration book that is supposed to entitle them to purchase enough food to feed themselves at very inexpensive, subsidized prices. The ration system, however, has not provided enough food to feed the Cuban populace since the dissolution of the Soviet Union (Cuba's key trading partner) in 1991. In the late 1990s, the Cuban government acknowledged that the ration system was providing only about two-thirds of the dietary needs of the Cuban people. Some reports suggest that the ration system now provides a slightly higher proportion of basic food requirements whereas others indicate that supplies in the ration stores are providing less food than in the late 1990s. Suffice it to say that the ration book does not provide the basic nutrition for Cuban citizens so they need to purchase food in other outlets.

Food products also are available through state-run, non-rationing stores. There are two types of markets within this category: *Tiendas* in Cuban pesos and *Tiendas* in CUCs, both of which receive their stock for sale from the Cuban government. An explanation of the differences between these two stores necessitates a description of Cuba's dual currency system. Today, Cuba circulates two currencies: the national currency, which is the *peso Cubano* (Cuban peso, CUP or *moneda nacional*), and the *peso Cubano convertible* (convertible peso or CUC).

The CUC is directly convertible with hard currencies such as Euros, Canadian dollars, British pounds sterling, etc. The exchange rate between the CUC and other hard currencies [table 2] is reported on the Cuban Central Bank (CCB) website (<http://www.bc.gov.cu/English/home.asp>). The Cuban government, however, charges an extra 10 percent commission on converting U.S. dollars into CUCs that is not reflected in exchange rates on the CCB website. This commission does not apply when converting other currencies to CUCs.

All tourists and visitors to Cuba must pay for goods and services using CUCs (or they may use credit cards for charges in CUCs as long as the credit card is issued by a non-U.S. bank). Exchanging other currencies into CUCs, however, must be done in Cuba as countries typically do not maintain stocks of CUCs to perform the exchange.

The national currency, the *peso Cubano* (Cuban peso, CUP or *moneda nacional*), is the currency that the Cuban government and citizens use to conduct transactions within the country. Cuban citizens are paid by the government in *pesos Cubano* and typically conduct most of their transactions in this currency. The exception is when Cubans obtain CUCs (or hard currencies) as tips in the tourist sector, through remittances from family members overseas, or from sales of products in the black market. So the primary difference in the *Tiendas* in Cuban pesos and *Tiendas* in CUCs is the currency used for the transactions. Prices in both of these outlets are significantly higher than in the State-Run Rationing system.

Table 2: Cuban convertible peso (CUC) official exchange rates

Official Exchange Rate for Cuban Convertible Pesos (effective May 19, 2007)		
British Pound	GBP	1.8247
Canadian Dollar	CAD	0.8456
Swiss Franc	CHF	0.7547
Japanese Yen*	JPY	0.7661
USA Dollar	UDS	0.9259
Mexican Peso	MXP	0.0815
Danish Krone	DKK	0.1676
Norway Krone	NOK	0.1526
Sweden Krona	SEK	0.1353
Euro	EUR	1.2479
“Convertible” Cuban Peso	CUC	1.0000
Notes: * Refers to a hundred units		

At the time of this writing, the *peso Cubano* (CUP) exchanges with the Cuban convertible peso (CUC) at the approximate rate of 26 CUP per CUC.

Even with the major increases in salaries announced by the Cuban government in November of 2006, the average Cuban salary ranges between 300 and 500 CUP per month (between about \$12 and \$15 per month). Reports are that Cubans may spend as much as 60 percent or more of their monthly salary purchasing food outside of the ration system.

The non-state sector distribution system obtains its food supplies largely from “surplus” production (i.e., production by farmers beyond the quota volumes that they are obligated to sell to the state food collection agency, *Acopio*). Within the non-state sector distribution system are the formal economy outlets, the Free Agricultural Markets (*Mercados Agropecuarios*, or MAs, described earlier in this report) and the *Puntos de Venta* (points of sale). *Puntos de Venta* operate in a manner similar to the MAs although they are operated by cooperative members and are much smaller in size and in the variety of products they offer.

The informal economy is composed of the underground market and the black market. Underground markets involve the sale of products that can be legally sold outside of the state system at the MAs and *Puntos de Venta*. Underground market sales, however, are made direct to final consumers or to *intermediarios* (intermediaries) who mark up the products and resell them. As such, these sales occur completely outside of state control and the Cuban government does not collect a tax on the sales as it would if the products moved through the MAs or *Puntos de Venta* formal markets. Although the Cuban government does not look favorably upon underground market activities, it typically does not aggressively pursue the participants because the underground market does play a role in helping people obtain food.

Black markets involve the sale of products that are illegal to sell or purchase outside of the state system. Examples of black market products include some meat (from cattle, buffalo, and equine animals), milk and its derivatives (e.g., cheese), coffee, tobacco, cacao, potatoes, honey, and

sugar. Sales of these products are restricted by the Cuban government because they are in critically short supply. Therefore, the state seeks to control their distribution to target consumers (e.g., milk sales are limited to the young and the elderly), or limit their sale to within the ration system (e.g., potatoes), or their sale is restricted to export and tourist markets to generate hard currency revenues. Additional products other than those listed above are considered black market items if they have been stolen from state-run stores, warehouses, etc. Figure 16 has a grey arrow (moving from top left to bottom right) to reflect that there is pilferage of food supplies from the state sector to the non-state sector in volumes that the Cuban government acknowledges are significant although no estimates of actual volumes are available.

All Cuban families are forced to be continually shopping in and monitoring supplies and prices in a number of these markets to supplement the food supplies available through the ration system.

A more detailed review of Cuba's food markets and distribution [fig. 16] is contained in Appendix 1, along with a separate figure depicting the flow of food and monies through Cuba's hard currency food chain and a corresponding description of that figure.

Cuba–United States Trading Infrastructure. Although the food distribution system in Cuba is complex and convoluted, there is only a single point of entry for food and agricultural products from the United States into the system: the Cuban company *Alimport (Empresa Cubana Importadora de Alimentos)*. *Alimport* negotiates contracts for purchase with U.S. firms, arranges for payment, takes control of the imports at the Cuban port and manages the distribution process within Cuba. Other Cuban government enterprises are authorized to purchase from companies of other countries, but *Alimport* is the Cuban government agency assigned as the exclusive agent for negotiating purchases from U.S. firms.

In negotiations with U.S. firms, *Alimport's* role is to facilitate the import process for client Cuban entities that want to import agricultural products from U.S. sources. Cuban regulations dealing with U.S.–Cuba trade are complex and politically sensitive, and having a special entity (*Alimport*) manage the coordination, negotiation, document preparation, and scheduling required for Cuban entities importing from U.S. sources is perceived by the Cuban government as a necessary control.

U.S. firms do not directly negotiate contracts with the end user of the exported product. The focus of U.S. firms is to negotiate the terms of sale with *Alimport*, and deliver products to *Alimport*. On occasion, *Alimport* will bring one of their “customer” representatives to negotiation meetings with U.S. exporters. Also, in some instances, a U.S. firm negotiator will request or be given a tour of Cuban end-user operations. But only under special circumstances will U.S. firms work directly with Cuban end-users to define the best possible product for Cuban needs, and even in those cases, negotiations for the sale contract are conducted with *Alimport*.

The most common forum for U.S. firms to meet Cuban end-users of food-oriented agricultural products is agricultural (food) fairs where U.S. firms promote their products to all interested Cuban entities. Some U.S. firms might occasionally hold food or cooking promotions in places such as CIMEX, SA's chain of Dollar Stores in Cuba (recent examples included U.S. rice and

U.S. pork promotions). It is unclear whether these kinds of promotions increase demand for U.S. exports.

Most U.S. firms consider *Alimport* negotiations an auction process, where *Alimport* announces its desire to purchase specific food and agricultural products, and gathers bids and counteroffers until it feels it has achieved the best possible price for the U.S. goods, at which point it conducts final negotiations on the contract for the purchase. For U.S. firms, the process is similar to a “blind” auction where none of the firms knows the position of any of the other firms.

United States–Cuba Export Policies. U.S. agricultural exports to Cuba are regulated by the U.S. Department of Commerce BIS (Bureau of Industry and Security, formerly Bureau of Export Administration) and the U.S. Treasury Department (Office of Foreign Assets Control). The U.S. Department of Commerce regulates commodity and product exports. Under the 1963 Cuban Assets Control Regulations (CACR), the U.S. Treasury Department regulates financial transactions involving Cuban assets and permitted commercial transactions as well as officially authorized travel to Cuba for U.S. citizens.

The U.S. Department of Commerce’s Bureau of Industry and Security (BIS) licenses agricultural exports to confirm that they are TSRA-qualified commodities and products. To ship agricultural products to Cuba, exporters must submit notifications of sale to the BIS, which then notifies other government agencies (Department of State, Department of Defense, Department of Homeland Security, etc.) of exporter intent to sell goods to Cuba. Twelve days after registering a proposed sale, the BIS will issue the exporter a license authorizing the export if there are no government agency objections.

U.S. exports to Cuba require a written contract between the U.S. seller and the Cuban buyer. The contracted exports must be shipped within 12 months of signing the contract.

The U.S. Department of Treasury’s Office of Foreign Assets Control (OFAC) is responsible for regulating all financial transactions with Cuba. The Trade Sanctions Reform and Export Enhancement Act (TSRA) included the requirement that U.S. sales to Cuba be on a cash basis. Until late 2004, this cash requirement was considered satisfied by cash-against-documents transactions via letters-of-credit through third-country banks. (U.S. law prohibits U.S. banks from conducting transactions directly with Cuban banks.) Under cash-against-documents exports, actual shipments of goods from the exporting port are not linked to the completion of the financial portion of the export transaction. Shipments of goods routinely left the exporting port while the corresponding financial transaction was in process, but the goods were not unloaded in Cuba until the letter-of-credit with the third country bank was confirmed.

Some U.S. officials argued, however, that when goods were shipped from U.S. ports before exporters receive payment, U.S. exporters were in effect extending credit to Cuba for those exports in transit until goods were actually delivered to *Alimport*. In response, in 2004, the Office of Foreign Assets Control (OFAC) announced that it would be reassessing the regulations governing the TSRA “cash sale” requirement. In 2004/05 OFAC addressed these regulations in a series of clarifications that ultimately stated that TSRA sales had to be on a cash-in-advance basis. This meant that the U.S. exporter must receive payment before a ship carrying export

goods leaves the U.S. export shipping port. Because of this clarification, the above cash-against-documents transactions were no longer allowed.

Cash-in-advance payment meant that the U.S. export goods would become Cuban property while the goods were physically in the U.S. port. Because Cuban property in the United States is subject to confiscation by U.S. authorities on behalf of Cuban exiles in the United States with legal claims against the Cuban government, Cuba refused to pay cash-in-advance. Instead, this advanced payment requirement was satisfied by agreement that a confirmed, irrevocable letter-of-credit be completed with a third country bank before U.S. export goods depart from U.S. ports for shipment to Cuba.

U.S. Policy Effects on U.S.–Cuba Trade. U.S.-Cuba export policies do have an impact on U.S.-Cuba trade and on U.S. exporters' comparative advantage in the Cuban import market. U.S.-Cuba export regulations increase the transaction costs relative to the comparable costs incurred by other exporters. These higher costs can offset, in part, the shipping advantage that the United States has being in such close geographic proximity to the Cuban market.

The letter-of-credit process Cuba uses for purchasing U.S. goods takes about 15 days. If this process takes longer than it takes *Alimport* to schedule a ship for loading and complete the loading process, the letter-of-credit delay would cause a shipping delay and increase *Alimport's* demurrage costs at the U.S. export port. The recent U.S. International Trade Commission (USITC) study estimates these demurrage charges to be \$10,000-15,000 per day, depending on the size of the ship.

Letter-of-credit delays in moving the goods out of the U.S. port can also generate backup delays in the movement of U.S. goods for export from internal U.S. locations into the U.S. port, thereby increasing the U.S. seller's demurrage charges for these shipments as well. If the export goods are perishable, additional costs can be incurred by both parties, from complete loss of product to penalties incurred for delivering a product that no longer meets contract specifications.

During the past several years, *Alimport* has begun to insist that import contracts include a longer period (increasing to 120-180 days) in which claims can be filed and settled. U.S. exporters, however, generally report that Cuba is reasonable in its claims and associated settlements.

Smaller U.S. firms that have been selling smaller quantities to *Alimport* have been leaving the Cuban market. Small quantity sales have a higher cost of packing and shipping, thereby making a small quantity sale less competitive in the negotiations. The export licensing and overhead costs incurred by these firms cannot be spread throughout large export quantities, thereby making their goods less competitive with the larger U.S. firms. For smaller exporters, Cuba shipments are likely to be less than a full shipload. Because each separate shipment requires a confirmed letter-of-credit before the ship can leave the U.S. exporting port, any delay for any single letter-of-credit delays all shipments on that vessel. The recent USITC study reports that this kind of delay varies from one to 10 days and can raise total shipping cost by \$20,000 to \$40,000.

Cuban Import Policies and Regulations. Cuban food import decisions are not based solely on supply and demand conditions. Political and philosophical factors also are important trade determinants. For example, food imports are, in part, determined by Cuban government estimates of the unmet protein and carbohydrate needs of the Cuban population rather than based on products consumers want. A major determinant of Cuban food purchases is nourishment provided per dollar.

Political factors are important in Cuba's decisions to purchase U.S. agricultural products, and these factors are more pronounced than for most other countries. Cuba realizes that it is a small market for U.S. agricultural products but Cuban government officials indicate that they want to preserve U.S.–Cuba trade ties. The Cuban government publicly states that it desires fewer trade restrictions between the two countries, and government officials routinely emphasize to both U.S. firms and U.S. public officials the value of Cuba's imports and how those imports are curtailed by current U.S. policies. Cuba distributes its purchases across the U.S. (at least 37 states) in support of its case for less restrictive trade policies. They argue that sales to Cuba do not constitute "trade" given that "trade" is a two-way process and Cuba is prohibited from exporting to the United States. Cuban government officials also state that, were Cuba able to export to the United States, the foreign exchange earned on those exports would allow Cuba to significantly increase imports from U.S. firms.

Product brands have not been a major factor in past *Alimport* food and agricultural product purchasing negotiations with U.S. firms. Cuban buyers state that not paying a premium for branded goods is part of the Cuban socialist philosophy. Meanwhile, *Alimport* courts major U.S. and multinational firms to convince them to enter the Cuban market. Although branding has not been a significant part of *Alimport's* agricultural and food product purchasing agenda, branded food and non-food consumer items (including U.S. brands) are desired in Cuba's urban society.

Cuba requires that Cuban inspectors, or their agents, inspect import products as they are being loaded at their source for export to Cuba. Cuba requires this inspection process for imports from all countries with which it trades. For other countries, Cuba uses Cuba Control to manage this product inspection process. For U.S. exports, Cubans accept U.S. export inspection certificates, but still want Cuban inspectors or third-party agents present at loading to inspect the products. U.S. exporting firms report that they do not consider these inspections to be onerous or unreasonable but they do experience problems to the extent that Cuban inspectors can have difficulty in obtaining visas from the U.S. government for these inspections.

During the past few years, U.S. exporters report that Cuba has become increasingly concerned about the quality of imported goods. When U.S. agricultural trade first opened, Cuba was more concerned about the lowest prices possible to make their scarce foreign exchange buy as much food as possible to meet its food needs. As the Cuban economy improved and the large food shortfalls of the *Special Period* became less severe, Cuba could again afford to consider product quality in their importing decisions. For many products, contracts have shifted from specifying lower-priced, second-grade products to first-grade products.

When U.S. imports are delivered to *Alimport* for subsequent sale in the hard currency stores, a markup of about 240 percent is added to the price *Alimport* negotiated with U.S. exporting firms.

Only a relatively small proportion of U.S. food exports to Cuba move through the hard currency stores. Nevertheless, *Alimport* plays an important role in the Cuban food markets; it controls the quantity and quality of U.S. products imported as well as the market price Cuban consumers pay for those products in the hard currency stores.

Cuba–U.S. Trade Negotiations Process. *Alimport* negotiators are young and well-educated; most are recent college graduates. According to Cuban officials, older, more experienced commodity trade experts are not assigned these negotiating positions as new, young staff members are thought likely to be more flexible and tolerant in negotiating and dealing with U.S. exporters and officials.

Alimport commodity specialists do not remain specific commodity negotiators for extended periods of time. Instead, they are rotated to different commodity assignments. U.S. exporter representatives consider them to be very ethical in their business dealings but tough negotiators. They reportedly do not make unreasonable demands during contract negotiations and are considered very conventional purchasers of food products. They value and respect contracts, and they readily work within the contract terms. Contract provisions for making future adjustments are considered fair by U.S. exporters. Most U.S. exporters have found Cuban negotiators quite reasonable when specific shipment product quality problems are negotiated. Unlike some other developing countries U.S. exporters say they deal with, there are no corruption issues with the Cubans. There are no bribes or kickbacks.

As with the contract itself, negotiations about product specifications and grading are dealt with in a very business-such as manner and based on logical and sound scientific principles. Cuban GMO (Genetically Modified Organism) protocols established for rice, grain and oilseeds imports from the United States are considered reasonable by U.S. firms and based upon sound science.

After Bovine Spongiform Encephalopathy (BSE) was discovered in the United States in 2003, Cuba kept its borders open to U.S. live cattle. Some beef cattle imports from the United States have been held up recently because of an issue with Bluetongue virus (BTV) in the particular animals for which Cuba had signed a contract for purchase.

Cuban Port Infrastructure. Cuba has 13 ports of consequence and 7 main ports. Cuba’s main ports are in Cienfuegos, Havana, Manzanillo, Mariel, Matanzas, Nuevitas, and Santiago de Cuba, with Havana being the primary deep-water port [fig.17]. The Port of Havana is the most important in terms of landings, operating capacity and vessel days. It has 14 distinct terminals, docks and pier areas with maximum anchorage drafts up to 10.3 meters.

Figure 17: The Port of Havana is Cuba’s major deep water port and the only port that Cuba uses to offload U.S. container shipments.



Most passenger and cargo traffic to and from Cuba is handled through the Port of Havana. Traffic through the port has been growing by approximately 8.7 percent annually and some reports indicate that, at this rate the Port of Havana is expected to exceed its full capacity of 4.2 million tons per annum by the end of 2007. The U.S. International Trade Commission, however, estimates that Cuba now has adequate bulk handling and cold storage facilities to handle and maintain the quality of U.S. bulk and refrigerated food product exports.

All U.S. container shipments to Cuba go into the Port of Havana. Only one Port of Havana terminal has container cranes so ships without their own gear are restricted to unloading at this particular terminal.

Driven by a long history of foreign investment, Cuba has long been a major cargo hub. Spain invested heavily in Cuban ports to ship silver and gold from the Americas to Europe and, later (in the 1800s), sugar to the United States and Europe. The United States subsequently invested in Cuba's ports to move products throughout the Americas until the 1950s. From the 1960s to the collapse of the Soviet Bloc, the Soviet Union invested heavily in its sole Western Hemisphere cargo hub. During the *Special Period* following the Soviet Bloc collapse, port maintenance and repairs virtually stopped.

The recent U.S. International Trade Commission study reports that Cuba's poorly maintained ports cause many problems, including loading and unloading times that are often two to three times as long as in other Caribbean ports. Many Cuban ports have only limited cold storage facilities. Only the Ports of Havana and Santiago de Cuba have adequate cold storage facilities for current needs. Recent estimates indicate that only about 200-300 refrigerated containers can be accommodated at any one time at the Port of Havana. Cuban ports also lack sufficient forklifts and cranes to rapidly unload and move cargo to port storage. And beyond the problems caused by poor quality port infrastructure and maintenance, additional delays are caused by bureaucratic obstacles and scheduling inefficiencies in Cuba. The resulting ship delays in port during unloading or offshore delays of ships getting into Cuban ports generate large demurrage charges for the Cuban government.

Since 2004, these structural problems often have been compounded for the Port of Havana when the port is overwhelmed with a large number of shipping containers. Transportation bottlenecks

and demurrage charges increased so much that Fidel Castro spoke out about Cuba spending too much money on demurrage charges and directed that increased efforts must be made to streamline trading and shipping processes and the movement of goods through the system. The magnitude of the Port of Havana bottleneck and delays prompted Raul Castro to order Cuban Army troops to provide emergency assistance by augmenting Cuban port personnel and to supervise expediting the movement of the backlog of import goods out of the port and into Cuba's domestic distribution system. With this intervention, the average turnaround for containers moving through ports recently has dropped from as long as several months to about two weeks.

The Cuban government is now beginning to rehabilitate some of the port facilities that fell into disrepair in the 1990s. As part of the 2007-2010 national economic development plan, Cuba has begun a US\$180 million major upgrade to modernize and improve the efficiency of Cuba's port system. Technology upgrades will be installed first in the most important ports, including the Ports of Havana, Santiago de Cuba, Cienfuegos, Mariel, Nuevitas, and Puerto Carupano. Plans also include upgrading container terminals at the Ports of Mariel, Santiago de Cuba, and Nipe (in Holguin province).

Port of Havana improvements will include:

- enlarging storage facilities,
- rebuilding wharfs and equipment,
- installing new hoisting equipment, generators, and cargo handling equipment (forklifts, silos, etc.), much of which will be purchased from China,
- constructing a fourth dock (220 meters long, 10.5 meters deep) thereby increasing the port's deep water capacity from its present 640,000 tons of cargo to more than one million tons,
- introducing new technology and cargo handling equipment to help increase daily unloading capacity to more than 5,000 tons of bagged merchandise and 7,000 tons of bulk cargo, and
- channeling, dredging, and deepening berthing depths (beginning with the Port of Santiago de Cuba and then progressively on to the remaining ports).

ASPORT, the Cuban harbor authority, also plans to make the Port of Mariel a prime Cuban cargo port, increasing throughput capacity from its current one million tons.

Cuba's core port infrastructure exists, and with the current improvements underway, a relatively modest influx of new investment and management expertise would return Cuban ports to modern efficient levels. Cuba would then become well-positioned to again be a hub for Caribbean trade as a shipper, an importer, and a value-added distribution point.

Cuba's Domestic Transportation Infrastructure. Cuba faces severe problems in moving food products around the island, from both production points and ports to Cuban processing or consumer selling points. Even with the recent increase in oil imports from Venezuela, fuel shortages continue to hamper the movement of food products and other goods around the island. The Cuban government has acknowledged that poor grain storage facilities and inadequate railroad rolling stock led to severe grain spoilage and losses in 2006. Poor food transportation

and food storage facilities lead to considerable food input delivery delays for the Cuban food processing sector. The lack of trucking and refrigeration capacity also causes problems with the delivery of fresh produce to joint venture tourist hotels in Cuba. In addition to the shortage of trucks and the poor quality in Cuba's transportation infrastructure, the existing Cuban transportation systems are poorly managed.

As a result of the poor quality of Cuba's internal transportation systems and its inability to handle large cargo volumes or heavy cargo shipments, product movement within Cuba is very slow. In spite of this, Cuba's domestic transportation system would probably be considered average when its performance is compared to that in many other parts of the developing world.

Rail. Cuba has two rail systems over essentially the same routes. One is a 19th century narrow-gauge railroad dedicated to moving sugarcane and related goods. A second parallel system is a standard gauge railroad used for shipping all other goods. Cuba's rail system provides access to 97 percent of the Cuban population. It passes through nearly all provincial mainland capitals.

The condition of Cuba's rail system is mixed. The rails are of reasonably good quality. The railroad ties and the roadbeds need significant work to bring the railroads anywhere close to current standards. The weakest link in Cuba's railroad system is the railroad bridges. They are old and have not been well maintained. They cannot handle the rail car weights that most developed country railroads routinely handle.

Cuba is currently attempting to rebuild its rail system. About 60 percent of the rail bed is already rebuilt. Most of the railroad ties being used are imported from the United States. New railroad rolling stock is now being purchased from China.

Roads. Cuba's road network is reasonably good. Roads provide access to more than 97 percent of Cuba's population. The quality of the roads is poor, however, although probably somewhat better than roads in Central America, for example. High fuel prices and limited quantities of automobiles keep traffic relatively light. Many of these roads, particularly secondary and tertiary roads, are also used by slow-moving agricultural vehicles (both motorized and animal-drawn), and by bicycles. Even the better roads are suited only for light vehicles. Most roads are incapable of handling heavy truck traffic associated with cargo shipments.

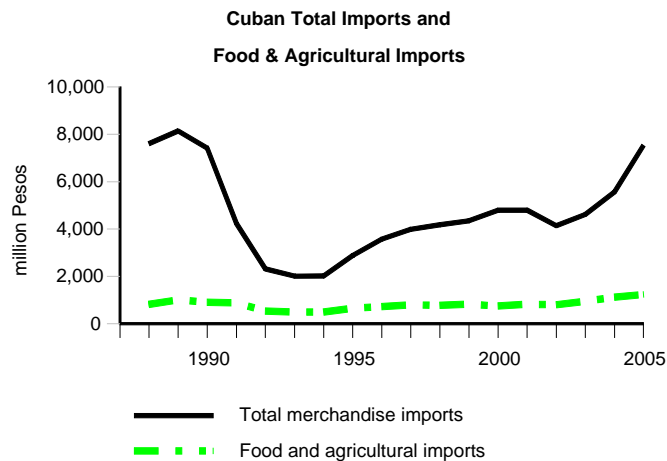
Trucking. Cuba's trucking system is not in good condition. Even though Cuba has about 60,000 state-owned trucks, there is a shortage of trucks that run. Existing trucks are old, small (2 to 5 ton), flatbed trucks and in poor repair. There is a shortage of parts to keep existing trucks in operating condition. Many of the trucks are built for specific industry hauling, particularly for sugar or citrus crops.

Cuba's International Trade Situation

Cuban Imports. A recent Cuban press article contained a surprisingly candid observation by a high-level Cuban Ministry of Agriculture official that 84 percent of all food consumed in Cuba is imported. Clearly, the significant transformation in Cuba's agricultural and food system since the dissolution of the former Soviet Union goes beyond production agriculture.

Cuba's food and agricultural imports have fluctuated widely since the late 1980s [fig. 18, and Appendix 2, Table 1]. The dramatic decline in Cuba's total merchandise and agricultural imports in the early 1990s was driven by the collapse in the value of Cuban exports (most notably sugar) following Cuba's loss of its preferential trading relationships with the COMECON (Council for Mutual Economic Assistance – the former Soviet network established in an effort to integrate the economies of eastern Europe) nations and its lack of access to external financing. Government efforts to avoid food shortages after 1990 explain Cuba's agricultural import patterns; despite a large proportionate decrease in value, agricultural imports became an increasing percentage of Cuba's total imports as the government struggled to maintain imported food supplies. This overall decrease in agricultural imports, coupled with rapidly declining domestic agricultural production volumes, brought about the early 1990s food shortages that reached near catastrophic proportions in 1994, leading to the "rafters" crisis that summer.

Figure 18: Although imports plummeted when the Soviet Bloc collapsed, food and agricultural imports declined less as Cuba struggled to deal with the resulting catastrophic food storages.



As the Cuban economy began a slow recovery after 1994, so too did Cuba's agricultural imports, and in 1995, the value of Cuba's agricultural imports increased appreciably on a percentage basis. This trend continued, and in 2004, the value of Cuban agricultural imports slightly exceeded 1989 values. The growth in food and agricultural imports continued in 2005 and 2006.

Despite the many changes that have taken place in Cuba during the past 50 years, Cuba's agricultural import mix changed relatively little during that period. Rice, grain, and oilseed products were Cuba's most important agricultural imports in the 1950s. That remains true today, although dairy products and poultry meat are also important imports at the present time.

Far more significant for U.S. exporters is that in only two years, the United States went from being a non-participant in Cuba's agricultural import market to being Cuba's largest supplier of these commodities. Despite passage of the Trade Sanctions Reform and Export Enhancement Act (TSRA) in 2000 which allows U.S. firms to export agricultural products (and medicine) to

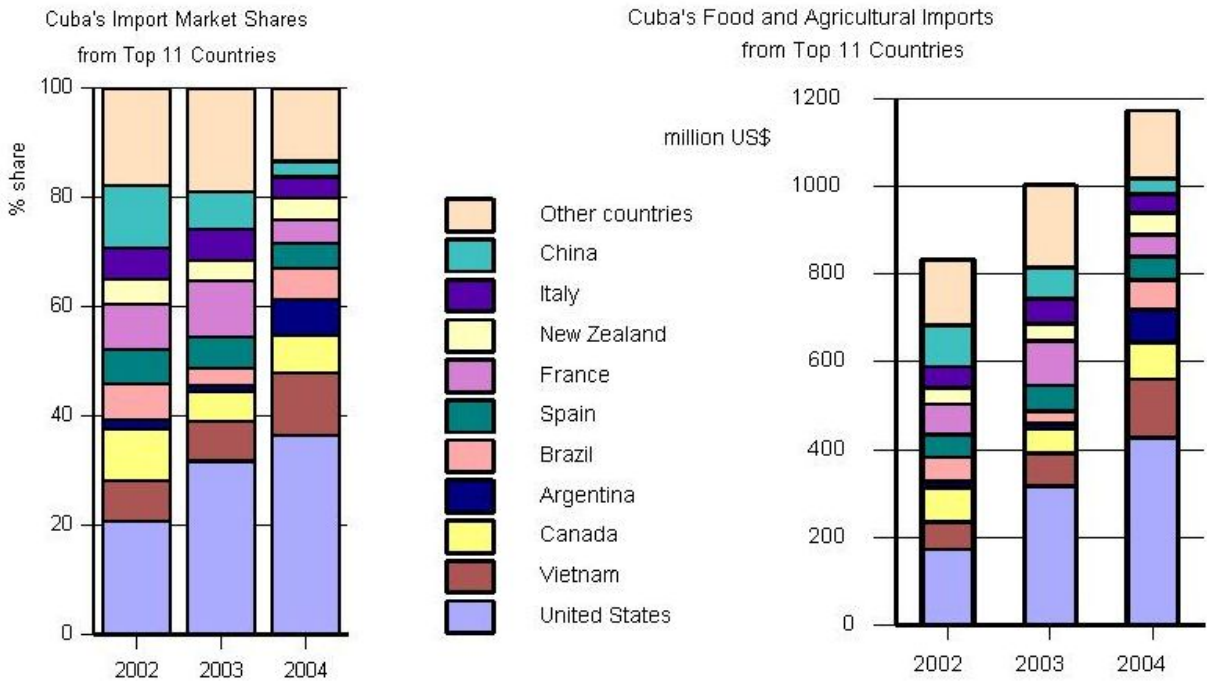
Cuba, Fidel Castro initially chose not to purchase from U.S. firms because of TSRA's cash sale requirements and because the legislation does not allow Cuba to export to the United States. Following the damage inflicted by Hurricane Michelle on Cuba's agricultural sector in November 2001, however, the Cuban government began purchasing from U.S. companies late that year, and by 2002, the United States became Cuba's most important supplier of imported agricultural products.

The position of the United States vis-à-vis Cuba's other agricultural import suppliers through 2004 is shown in Appendix 2, Table 2. Although the U.S. share of Cuba's agricultural imports in 2002 was only about 20 percent, it grew to more than 36 percent in 2004, more than three-times as much as Cuba's number two supplier, Vietnam [fig.19]. Cuba's purchases from the United States of \$382 million in 2004 ranked it as the 26th most important U.S. agricultural export market. U.S. agricultural exports to Cuba decreased in 2005 and 2006, due in part to a decision by the U.S. Government to re-evaluate the specific terms and conditions of the "cash sale" requirement of the TSRA legislation (discussed previously). These decreases came at a time when Cuba's total agricultural imports have increased. Thus, the U.S. share of the Cuban market for agricultural imports has fallen, although it is still between 25 and 30 percent of Cuba's total agricultural imports.

Cuba's agricultural product purchases from the United States are shown in Appendix 2, Table 3. In 2006, Cuba was among the top 10 U.S. agricultural export markets for: soybean oil (the 2nd most important U.S. export market); dry peas (3rd); lentils (4th); dry beans (5th); rice (8th); and powdered milk (10th); and the 11th largest U.S. poultry meat export market.

Not only is the United States Cuba's most important agricultural product supplier, but on the basis of its 2006 agricultural exports alone, the United States also was Cuba's fourth largest import supplier overall, behind only Venezuela, China, and Spain (i.e., the value of Cuban agricultural imports from the United States was larger than the value of Cuba's total imports, agricultural plus non-agricultural, from all but the three aforementioned countries). Moreover, based solely on the value of its agricultural exports to Cuba in 2006, the United States was Cuba's sixth largest trading partner overall (total bilateral trade in agricultural plus non-agricultural products), behind only the above-referenced countries plus Canada and the Netherlands.

Figure 19: The United States became Cuba's largest agricultural import supplier in 2002. The U.S. share of Cuba's market grew from 20 percent in 2002 to more than 36 percent in 2004.



It should be noted that China's 2006 bilateral trade with Cuba nearly doubled to \$1.8 billion, far larger than the value of U.S. agricultural exports. Nevertheless, even with the U.S. embargo in place, the United States has clearly become a major player in Cuba's international trade.

At the end of May 2007, meetings were held in Cuba between U.S. agribusiness industry officials and representatives from *Alimport*, Cuba's agency in charge of importing food from the United States. More than 250 U.S. agribusiness industry representatives from 114 companies in 25 states attended these meetings along with U.S. Congressional representatives from Arkansas, Connecticut, Georgia, Louisiana, and North Carolina. At least \$118 million worth of contracts were signed at these meetings and Cuban government officials indicated that more contracts could be signed as a result of the meetings to help ensure that Cuba purchases at least as much from the United States in 2007 as it did in 2006.

In conclusion, after plummeting by more than 75 percent in the years following the collapse of the Soviet Bloc, the value of Cuba's food and agricultural imports since 1994 has shown a steady and fairly rapid recovery. The value of Cuban imports of food and agricultural products is expected to continue to increase, buoyed by the important economic support that Cuba has managed to work out with Venezuela and by decreasing domestic agricultural production volumes in Cuba. The import composition by commodity category is not expected to change appreciably in the short to medium term. Imports of coarse grains, oilseeds, wheat, rice and related products, and poultry meat should continue to predominate, although imports of high-value products for the tourist trade will continue to expand as Cuba's tourist industry expands.

Other Observations

Cuba has a large cadre of well-trained technical scientists in its universities and government scientific agencies. These scientists and the Cuban government are active members and participants in many international scientific organizations dealing with sanitary and phytosanitary (SPS) issues, including the World Trade Organization (WTO) Committee on Sanitary and Phytosanitary Measures, the United Nations Food and Agricultural Organization (UN/FAO), and the United Nations Industrial Development Organization (UN/IDO) among others. As a result, Cuban scientists understand the technical requirements to satisfy SPS regulations and certifications for agricultural exports. As is the case with most developing countries, however, Cuba generally lacks investment capital to implement the necessary protocols to satisfy these regulations. There are exceptions to this situation, but they generally involve foreign companies that provide the capital to implement the protocols for the export and sale of Cuban products in foreign markets.

Cuba has been referred to as “the world’s first national experiment in sustainable agriculture”. Given the critical shortages in chemical inputs to Cuba’s agricultural sector following the loss of Soviet economic support and subsidization, this may well be a fitting description. Cuba’s use of the term “organic” to describe some of its agricultural production can be misleading. Not all of Cuba’s “organic” products would satisfy the organic certification requirements for most developed countries. That being said, Cuba is shipping certified organic fresh citrus and citrus juices into EU markets. With proper investments and implementation of the appropriate procedures and protocols, Cuba could well establish itself as a global supplier of organic products.

Summary and Conclusions

The Cuban economy has made remarkable progress toward recovery from the economic disaster generated by the collapse of the Soviet Bloc. To deal with losing large amounts of economic assistance and subsidized imports from its major export market, Cuba was forced to implement a severe austerity program and to undergo a transformation of its economy. Though still very much a planned, command-and-control economy, the transformation has been most dramatic in Cuba’s food and agricultural sector.

Domestic agricultural production has largely shifted away from large state-run farms and enterprises to more decentralized production cooperatives. Although some management and resource allocation decision responsibilities were given to cooperatives, state controls still constrain farm level decision making. Increased incentives, however, were provided through the establishment of agricultural markets where farmers can sell any surplus products they produce beyond the quota volumes they are obligated to sell to the state food collection and distribution agency.

Losing subsidized imports of production inputs and foreign exchange as exports dwindled forced Cuba to curtail production of many products dependent on imported commercial inputs. In the case of agriculture, these losses led to a shift away from large scale commercial production of sugar. It also forced Cuba toward smaller scale systems reliant upon more sustainable, organic

production practices. Smaller scale production systems for fruits, vegetables, roots, and tubers also were started in urban areas to better utilize the relatively available excess labor in cities and to help improve food availability for Cuba's urban population.

The loss of exports to Soviet Bloc countries forced Cuba to look to global markets and decide how it could profitably meet the demand-driven needs of those markets in an effort to generate hard currency export earnings. Cuba also had to turn to these markets for foreign investment to acquire new technologies and capital to allow Cuba to modernize and improve its long depleted stock of productive capital and to purchase necessary production inputs. An example of Cuba's successful efforts along this line has been the promotion and nurturing of its tourism sector. Also, with the help of foreign investment and technologies to produce the product quality and safety characteristics demanded by food importing consumers, Cuba has been able to successfully expand its shellfish production and exports.

This focus on external markets and foreign investment allowed Cuba to experience some success in reviving economic growth. As the economic pressures on the Cuban economy were gradually reduced, however, the Cuban government's overriding objective of maintaining political control led it to gradually backtrack on many of the more market-oriented policies it had allowed during the years of crisis in the 1990s. With that, many of the gains from the market-oriented policy changes have proven to be unsustainable.

But in recent years, economic assistance and subsidized oil exports from Venezuela have provided a new engine for economic growth for Cuba. These imported energy inputs have allowed commercial production to increase in some sectors, including some commercial agricultural production on the larger scale farms. The magnitude of this support from Venezuela and expanding trade credits and investment from China have somewhat mitigated the adverse impact of the U.S. embargo.

The major break with the past for Cuban agriculture came with the collapse of its sugar sector. Current policies governing Cuba's sugar industry coupled with the present dynamics of the world sugar market have provided little incentive for the large investments necessary for modernizing Cuba's sugar industry. In their recent book, Pérez-Lopez and Alvarez argue that a complete "reinvention" of Cuba's sugar industry would be necessary instead of the Cuban government's recent efforts which have done little to change its fundamental structure and function. This reinvention process would have to include major changes, such as privatization, decision-making autonomy for production units, independent cooperatives, limited state intervention and free labor and input markets. They conclude that such changes are not likely in the near future. Therefore, Cuba is not likely to soon regain anything approximating its former role in the world sugar market.

One development that could potentially alter Cuba's sugar industry is Cuba's effort to develop an ethanol industry using sugarcane as the feedstock. Recent news reports have indicated that a number of foreign investors have expressed interest in building ethanol plants in Cuba and that the Cuban government has announced plans to refurbish existing facilities to produce ethanol. Without fundamental structural changes approaching those advocated by Pérez-Lopez and Alvarez, however, it is questionable whether Cuba could efficiently produce the sugarcane

feedstock for these plants. Furthermore, Cuba's current access to low-cost oil imports from Venezuela may act as a disincentive to increase ethanol production by providing relatively lower prices for gasoline and other oil-based derivatives. The Cuban government has acknowledged that the primary economic opportunities for their ethanol expansion programs may be limited to some of Cuba's more isolated areas.

The United States is now supplying about 30 percent of Cuba's food and agricultural import requirements. Cuban government officials have indicated a reluctance to allow that proportion to rise much higher. The experience in 2004/05 when the U.S. government reevaluated the "cash sale" regulations of TSRA, in part, drove decreases in Cuba's purchases from the United States in 2005 and 2006 as Cuban officials at *Alimport* came to recognize that, whereas U.S. firms are reliable trading partners with quality products at competitive prices, their ability to service the Cuban market may be detrimentally impacted by U.S. policy.

Clearly there are advantages for Cuba to purchase food and agricultural products from the United States. In addition to the aforementioned quality and price considerations, the close geographic proximity of U.S. and Cuban ports means much lower shipping and transportation costs. This allows shorter lead times for orders and very short transit times (as little as one day) which are particularly important for purchases of perishable agricultural products; less time in shipping translates into higher quality products and longer shelf life in Cuba. Finally, the economic order quantities—the volumes necessary to achieve economical shipping and transportation rates—are far lower for purchases from the United States thus minimizing storage issues for Cuba.

Beyond the economic considerations, Cuban officials have acknowledged that there are perceived political advantages to purchasing food and agricultural products from the United States. This is demonstrated by the manner in which *Alimport* has gone out of its way to source its purchases from as many as 37 U.S. states, in an apparent effort to court favor with as many U.S. politicians and government officials as possible.

In summary, the current situation with respect to U.S. sales of food and agricultural products to Cuba appears to be in delicate balance at the present time. Although there are economic and possible political incentives for Cuba to expand its purchases of food and agricultural products from the United States, twice during the past 49 years Cuba has experienced the very difficult economic consequences of relying heavily on a single country for its imports and trading relationships. Cuban officials acknowledge that the memory of these economic shocks and the situation with respect to U.S. policy makes them apprehensive about allowing the United States to supply a significantly larger proportion of Cuba's food import requirements. Cuba is now receiving offers of credit for its purchases from an increasing number of other countries (e.g., with terms as long as two years for rice purchase from Vietnam.)

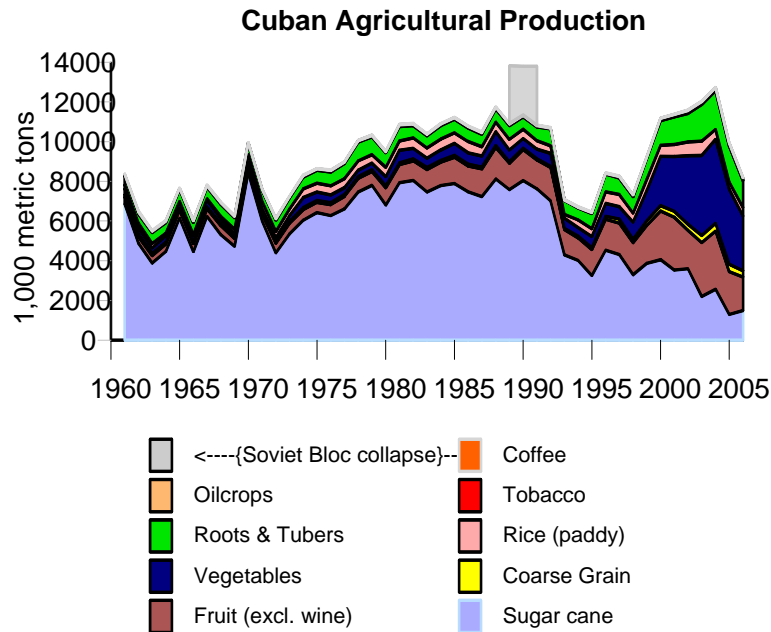
Addendum

Current Commodity Sector Situations

Sugar

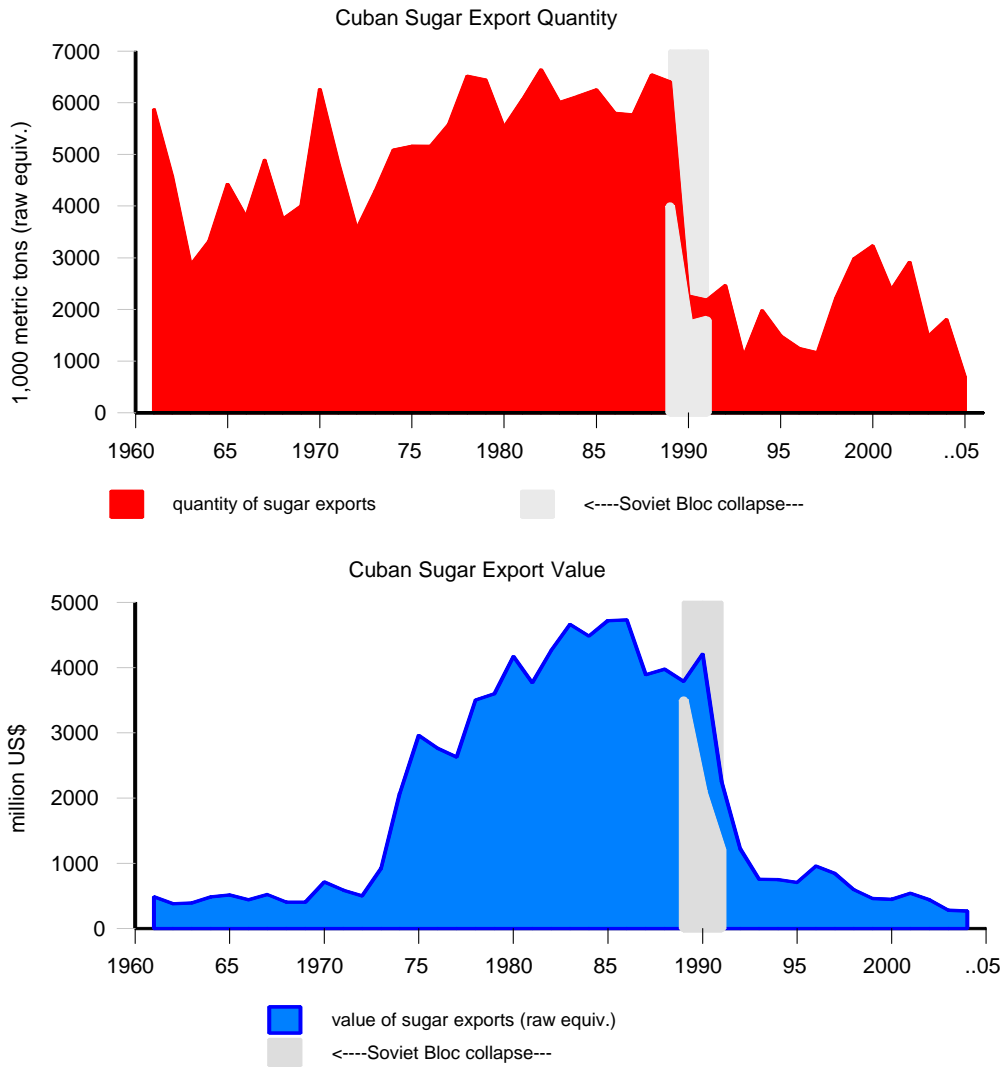
For most of the past 300 years, sugar has been the primary force behind the entire Cuban economy [fig. 20]. In the late 1980s, Cuba was the third largest sugar producing nation in the world (behind Brazil and India) and the world's largest sugar exporter. In the early 1990s, 125 of Cuba's 169 municipalities either contained one or more sugar mills or were otherwise heavily dependent on sugarcane production. More than 40 percent of Cuba's cultivated land was in sugar production, and direct and indirect employment in sugar accounted for more than 50 percent of Cuba's total employment. As discussed previously in this report, however, the loss of its preferential markets in Eastern Europe and the former Soviet Union left Cuba with a bloated and inefficient sugar industry.

Figure 20: For most of Cuba's history, sugar dominated the island's agricultural production.



Without the sugar industry's ability to generate the massive Soviet economic subsidies upon which Cuba had come to rely, the Cuban economy was thrown into crisis [fig. 21]. Beginning in the early 1990s, the Cuban government initiated a series of efforts to restructure its sugar industry to decrease output and reduce costs. This restructuring process has not made significant progress in improving industry efficiency, however, and Cuba's sugar production hovers at around 1.0 million tons, the lowest sugar production volume in nearly a century (down from more than 8.5 million tons per year in the late 1980s).

Figure 21: Soviet support for Cuba came through purchases of sugar at prices far in excess of world prices, so losing that support was devastating to the Cuban economy.



Any significant resurgence of Cuba’s sugar industry would require massive amounts of investment. Current policies governing the operation of Cuba’s sugar industry, coupled with the present dynamics of the world sugar market, offer no appreciable incentives for significant investment in the Cuban sugar industry.

Tobacco

Beyond sugar, tobacco is the other agricultural crop for which Cuba is most famous. The soils and climate of Cuba produce some of the finest tobacco in the world, and Cubans have a long history of producing what many claim are the world’s best cigars from this tobacco.

Tobacco growing requires special care and attention and, in recognition of this fact and the important economic role of tobacco and cigar exports, tobacco growing in Cuba was never gathered into huge state farms as were nearly all other agricultural crops following the 1959

Revolution. As a result, this structure of tobacco production was unique among crop sub-sectors in Cuba. Cuba's tobacco sub-sector managed to suffer less through the crisis of the early 1990s than the other commodity sectors.

It was the fortuitous explosion in the popularity of cigars, which began around 1992, that perhaps was the most important factor in helping the Cuban tobacco industry escape the immense contraction of production volumes that most of Cuban agriculture experienced. Portions of cigar exports revenues were funneled back to the tobacco growers. Some of the proceeds were used to expand cigar production capacities in Cuba. Meanwhile, the industry was particularly careful to maintain the quality of cigars being produced and exported. Reflecting this popularity of cigars and the resulting strong export demand for Cuba's premium brands, tobacco areas expanded during the 1990s, peaking in 1998 at nearly 49,000 hectares.

Because of the tremendous growth in cigar popularity, Cuba was able to attract foreign capital into the industry. Large investments and elaborate joint venture arrangements with firms from Spain, France, Brazil, and the Netherlands have helped the Cuban tobacco, cigar, and cigarette industries to prosper during otherwise very difficult economic times.

Although many joint ventures remain operating in the tobacco sector, Cuban government statistics show a dramatic contraction of tobacco areas after 1998, with reported acreage in 2006 only slightly more than 27,000 hectares.

Citrus

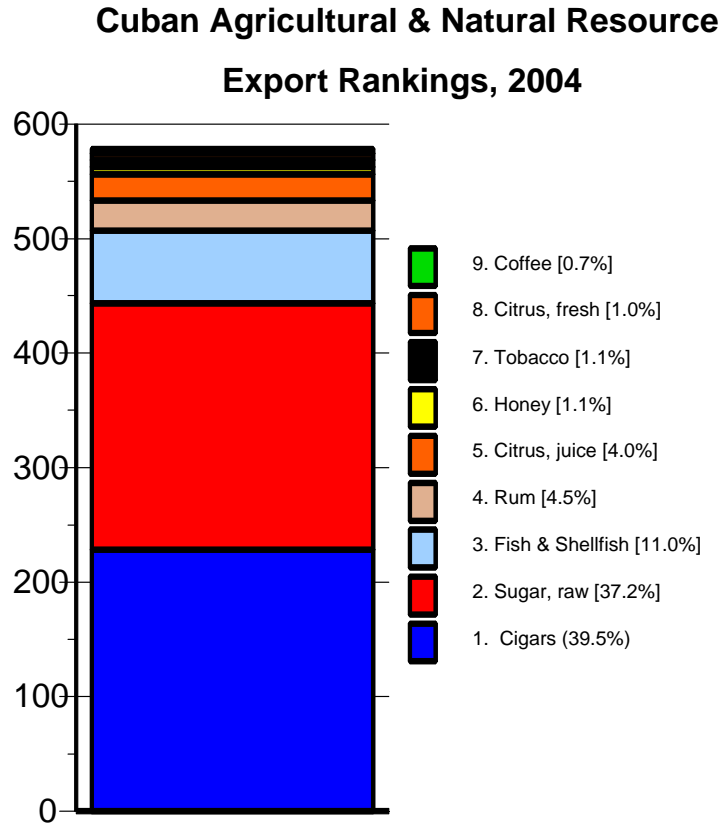
Citrus is a major commercial crop and significant foreign exchange earner for Cuba. Fresh and processed citrus is Cuba's fourth most important agricultural and natural resource export, responsible for about five percent of agricultural export earnings [fig. 22]. Production consists primarily of oranges and grapefruit. More than 80 percent of Cuba's oranges are Valencia. Both white and red grapefruit are produced. Cuba is the world's third most important grapefruit producer after the United States and Israel.

Citrus is produced throughout Cuba, but the western provinces of Matanzas, Pinar del Rio, and Isle of Youth alone contain about 60 percent of Cuba's citrus area.

Cuban citrus is well adapted for processing. More than half the oranges and about 70 percent of the grapefruit are processed for juice. Most processed citrus products are exported. Only a small amount of both grapefruit and oranges are exported fresh.

Prior to 1990, most citrus exports went to the former Soviet Union and the Council for Mutual Economic Assistance (CMEA, or COMECON) Eastern European countries. Since 1990, Western Europe has received the majority of Cuba's citrus exports, mostly as processed citrus products. These exports were facilitated by foreign joint ventures in Cuba's citrus industry. Cuba faces tough competition in Western Europe's fresh orange markets from Israel and Spain, which have high-quality products and lower transportation costs. Cuba's domestic citrus consumption is primarily fresh oranges. Almost half of Cuba's oranges produced are for fresh domestic consumption.

Figure 22: Citrus is a top five agricultural and natural resource export in Cuba.



As is the case for the rest of the economy, Cuba's citrus industry faced a major downturn when the Soviet Bloc collapsed. This was more than a loss of major markets for Cuban citrus. Imports of Soviet Bloc machinery, oil, and other agricultural inputs ended. With no hard currency coming in and a lack of available foreign exchange, the loss of production inputs was as devastating to Cuba's citrus industry as was the loss in citrus export demand.

Citrus production fell by about 45 percent in the first half of the 1990s. Orange production fell by more than half and grapefruit production fell by a fifth. Citrus area dropped more than 45 percent and new plantings ceased [fig. 23]. Fresh citrus exports fell about 90 percent [figs. 24, 25].

A Cuban-Israeli joint venture currently produces more than one-third of Cuba's total citrus production and controls more than one-fourth of Cuba's citrus area. Other investments in citrus production have come from Greece, Great Britain, Chile, and Italy although some of the foreign citrus ventures have withdrawn from their Cuba operations.

The citrus industry was hit by another devastating blow in 2001 as Hurricane Michelle swept across the major citrus plantations in central Cuba, where about half of the country's citrus is produced. The hurricane hit as the fruit was ripening and harvest was underway. An estimated

80 percent of the crop in this area was blown off the trees. Fruit recovery and processing were further obstructed by severe flooding, damage to roads, downed power lines, and heavy storm damage to Cuba's largest juice processing plant during their peak season. A series of hurricanes in subsequent years (including Hurricanes Charley in 2004 and Dennis in 2005) continued to make operating conditions difficult for Cuba's citrus industry due to fruit loss and tree damage.

Figure 23: Cuba's citrus industry collapsed in the early 1990s after the dissolution of the Soviet Bloc.

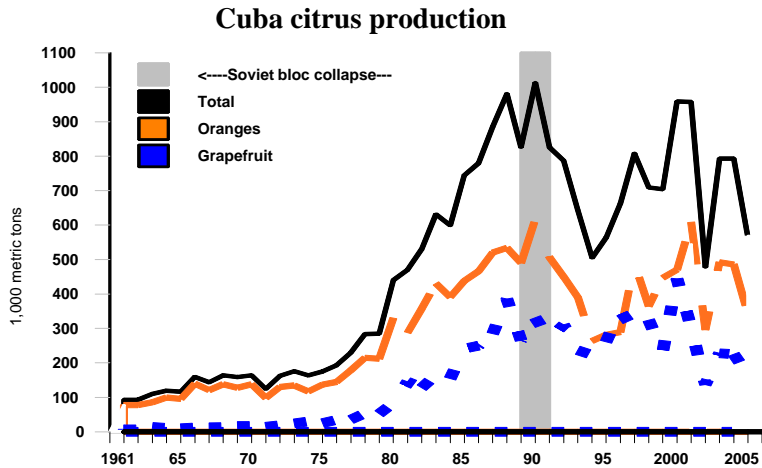


Figure 24: From 1970 to 1989, Cuba's fresh citrus fruit exports grew rapidly, then plummeted with the Soviet Bloc collapse.

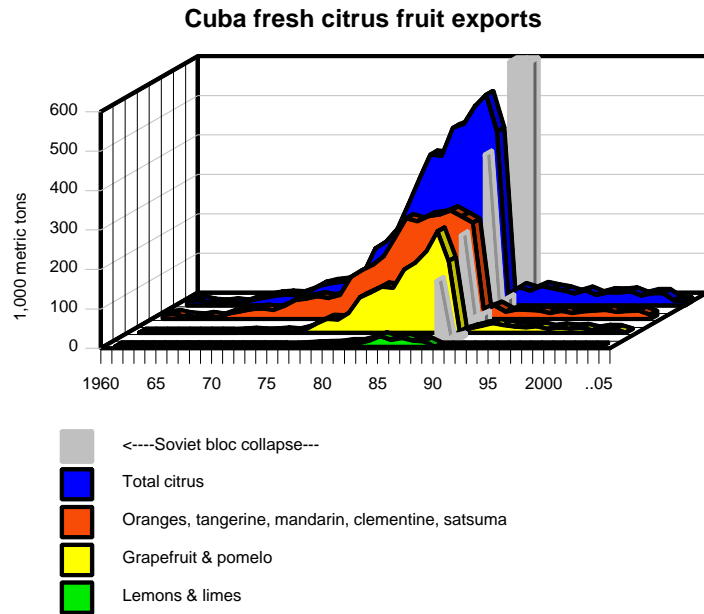
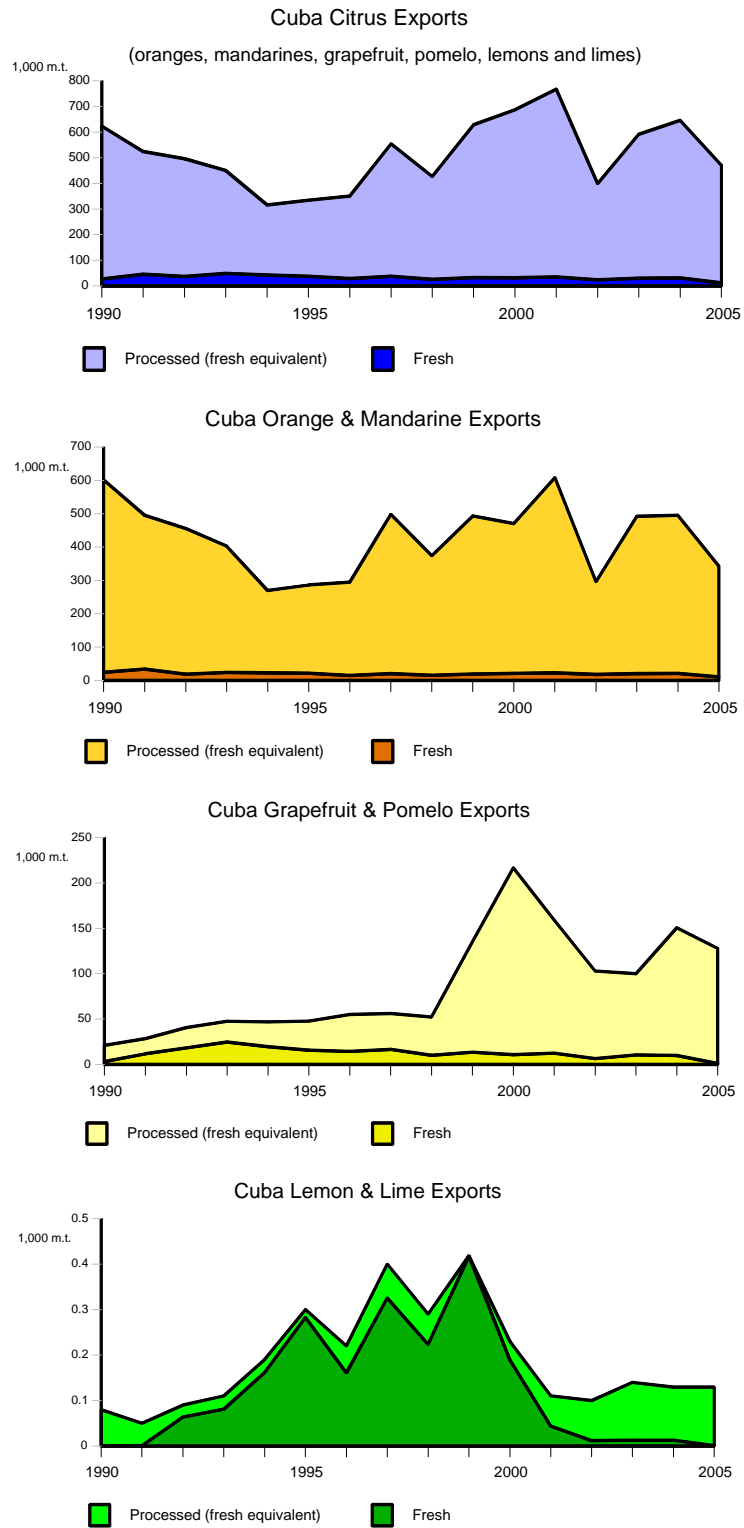


Figure 25: Cuba's fresh and processed citrus exports.



On the positive side, Cuba’s citrus industry reportedly has not experienced extensive challenges with diseases (citrus canker and greening) that are now plaguing the Florida citrus industry. With pests and diseases being transmitted over water by storms or hurricane winds, however, and Cuba’s proximity to Florida and Caribbean island nations, increased citrus pest and disease transmission to Cuba is highly likely.

Tropical Fruits

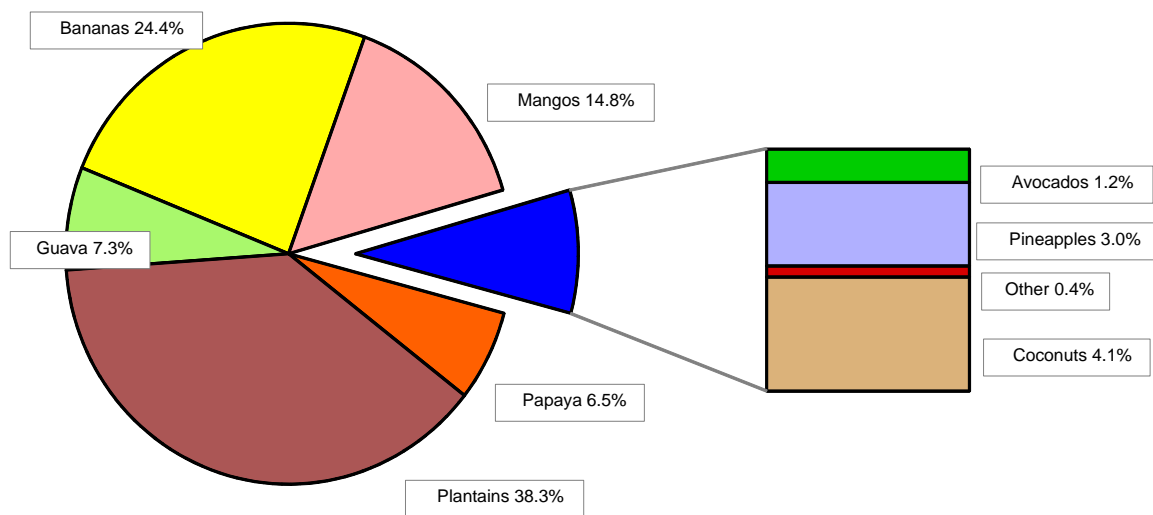
Tropical fruits have long been a staple in the Cuban diet. The growth in Cuba’s tropical fruit industry during the past 50 years has been driven primarily by increases in Cuban domestic demand generated by population growth.

In the 1950s, the United States was Cuba’s principal market for tropical fruits. Cuba lost this market when the U.S. imposed a total trade embargo in 1962. Cuba’s tropical fruit export markets withered, leaving a smaller industry with a domestic focus.

In the world market, Cuba is a minor producer and exporter of tropical fruit. Major tropical fruits produced include plantains (cooking bananas), bananas (sweet), mangoes, papayas, pineapples, avocados, guavas, coconut, and anonaceae (sugar apple family) [fig. 26]. Tropical fruits are considered traditional crops grown in traditional ways for domestic consumption.

Figure 26: Plantains and bananas are the most important tropical fruits and are staples in the Cuban diet.

Relative importance of tropical fruits consumed in Cuba, 2006



Plantains and bananas are starchy staples in the Cuban diet and generally considered to be a separate category from other tropical fruits. Plantains and bananas account for more than 60 percent of all tropical fruit produced in Cuba. Plantains represent almost two-thirds of that share.

Most bananas and plantains are consumed domestically, and are eaten fresh. Some bananas are processed into pulp for stewed fruit, and some plantains are processed into flour for bananina (soft sweet sandwich bread) and chips. Most bananas and about 80 percent of plantains are grown for human consumption. About five percent of plantains are fed to livestock, and the rest are considered waste.

Statistical Anomaly. There is a notable anomaly in some of the Cuban production data for tropical fruit. Although other Cuban agricultural commodities (other than sugar) showed a consistent pattern of collapse in the early 1990s, followed by gradual recovery after about 1994, Cuban government data for tropical fruit show a significant jump in production beginning in the early 2000s without any corresponding significant increase in reported planted or harvested acreage.

Given the difficult conditions under which Cuba's agricultural sector has been operating since the loss of Soviet subsidies and economic support, such an increase in production volumes is unexpected. It has not been possible, however, to obtain a firm explanation for this sudden large increase in the production of tropical fruit in Cuba. It is speculated that this increase is likely the result of a combination of factors, including both changes in agricultural production systems as well as in record keeping changes. For example, with shortages of staple crops and food supplies, tropical fruit has become an increasingly important part of the Cuban diet; in response, the Cuban government may have decided to try to track tropical fruit more closely and move an increasing proportion of domestic tropical fruit production through *Acopio*, the state marketing agency, thereby recording increased amounts of tropical fruit in official records that previously had not been included. Successful tropical fruit production in urban gardens and *organoponicos* may also have contributed to this production increase.

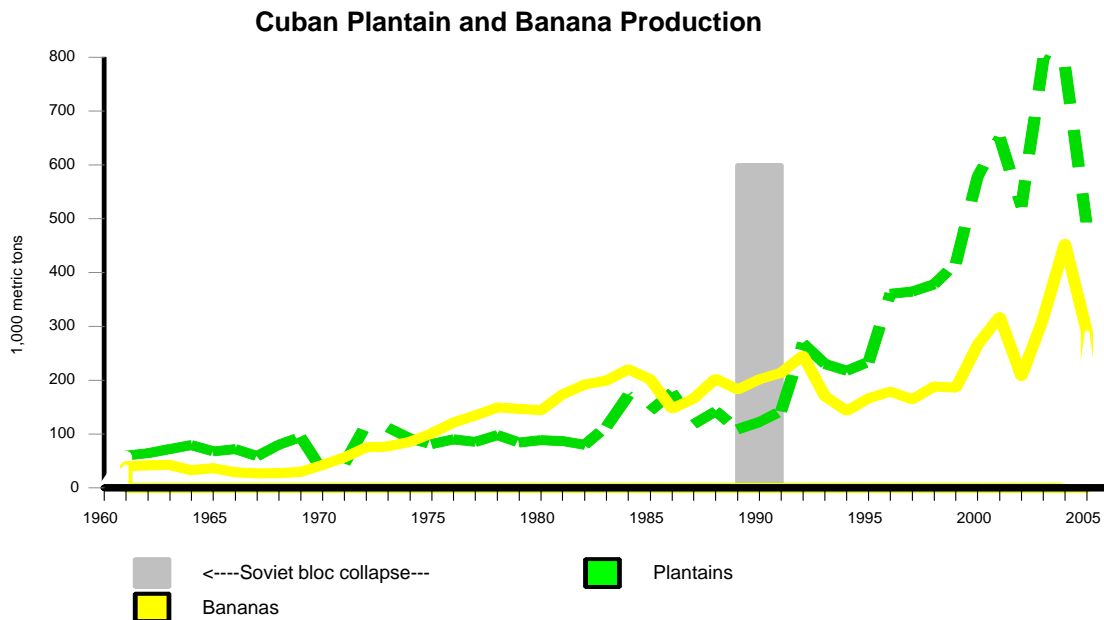
Regardless of the likely explanations for these relatively recent dramatic shifts in tropical fruit production patterns in Cuba, the most important tropical fruit crops are discussed below. It should be noted that these developments suggest a strengthening of Cuba's tropical fruit sector.

Plantains. With plantains a major staple crop well suited to the Cuban climate, Cuba, during the past two decades, encouraged plantain production to increase self-sufficiency. Plantain area, yield, and production also benefited from the urban gardening programs in the 1990s. These programs used minimal purchased chemical, fertilizer, and other inputs and depended heavily on increased labor and management inputs and intensive intercropping of vegetables with tropical fruit trees. The government encouraged plantain plantings to provide needed shade for vegetable crops as well as to increase the production of a major staple of the Cuban diet [fig. 27].

Bananas. With a longer production cycle than other tropical fruits, it took longer for banana production to feel the effects of Cuba's economic crisis. Bananas require 16 to 20 months to go from soil preparation to planting to harvest maturity. Thus, the 1993 crop was the first to feel the full impact of the Soviet Bloc collapse. Production fell more than 25 percent in between 1993

and 1995, as yields collapsed more than 40 percent [fig. 27]. Cuba's economic crisis and the loss of needed purchased inputs, particularly those required to maintain effective irrigation systems, triggered this downturn. It was only after 2000 that banana production started to grow.

Figure 27: Plantain production has increased more than banana production since 1990.

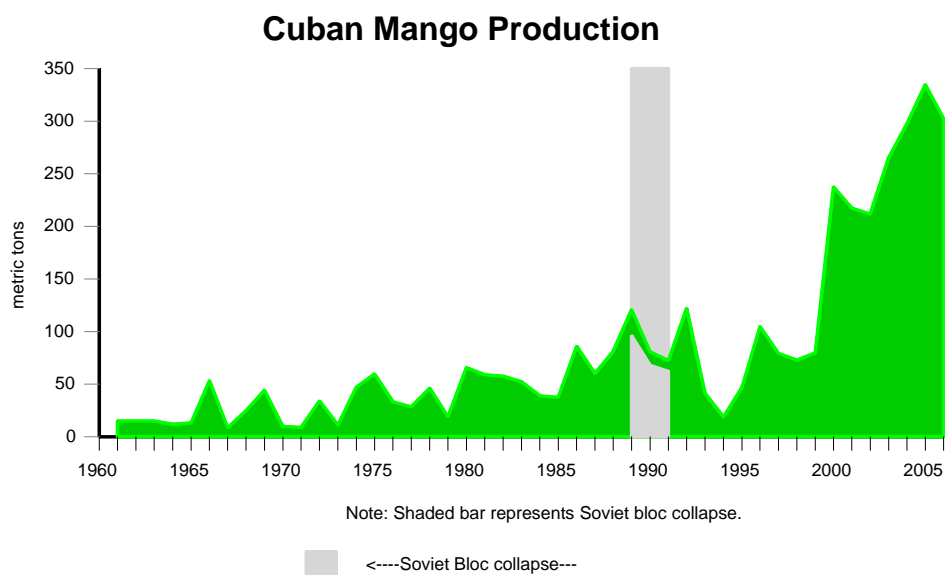


Mangoes. Mangoes are Cuba's third most important tropical fruit after bananas and plantains. They account for about 15 percent of all Cuban tropical fruit production (almost 40 percent when plantains and bananas are excluded). Mango production is tied to Cuba's reforestation efforts with mango trees regularly inter-planted with fast-growing Caribbean pine trees.

Cuban mango production fell about 60 percent between 1989 and 1994. In the latter half of the 1990s, yields and production recovered to 1980s levels [fig. 28]. In more recent years, mango yields have benefited from the urban gardening movement, which emphasized, among other things, the use of organic fertilizers. For example, compost and vermi-compost beds were often located in the shade of large mango trees to help maintain optimum moisture and temperature levels. The trees benefited from leached nutrients produced during the composting process.

Tropical fresh fruits, not elsewhere specified (n.e.s.) / Guava. Other tropical fresh fruit, not explicitly identified in the United Nations Food and Agriculture Organization FAOSTAT database, account for about 7.7 percent of all tropical fruit production in Cuba (more than 20 percent, excluding plantains and bananas). Historically, guava has been the major component of this commodity category for Cuba, accounting for about 95 percent of the total in 2006.

Figure 28: After collapsing in the early 1990s, mango production has recovered and now exceeds 1980s levels.



Cuban guava is harvested from both commercial plantations and wild trees. In many areas, guava trees have spread rapidly, overrunning pastures, fields, and even roadsides to form extensive thickets. These wild trees produce a large portion of the guava harvested for home consumption.

For high-yielding commercial production, guava needs heavy fertilizer applications. Although the trees are drought tolerant, they need heavy rainfall throughout the year or irrigation to produce high yields. Only about 10 percent of the tropical fruit area is irrigated in Cuba. Most of that irrigation is on guava and papaya plantations. Given these input demands, commercial guava production fell about 70 percent in the early 1990s from late 1980s levels when the Cuban economy could not support the purchase of inputs and energy supplies. Guava production in the late 1990s benefited from the urban gardening program emphasis on organic fertilizers and vegetable-fruit tree intercropping.

Coconut. Coconut accounts for about four percent of all tropical fruit production (about 11 percent when plantains and bananas are excluded). Cuban coconut production leveled off during the 1990s. Given the coconut palm’s long life and limited need for purchased inputs, coconut production did not immediately collapse in the early 1990s as did many other agricultural products in Cuba. Coconut palm acreage growth, however, ceased in the early 1990s. In the mid-1990s, coconut area and production began increasing rapidly. By the late 1990s, coconut yields began recovering and by 2006 had returned to near Soviet-Bloc-collapse levels.

Papayas. Papaya accounts for 6.5 percent of all tropical fruit production (more than 17 percent when plantains and bananas are excluded). Acreage, yields, and production collapsed in the early 1990s and then showed explosive growth until 2002.

Papaya trees need fertile, moist soil. Most likely, dropping yield can be attributed to Cuba's inability to purchase fertilizer after the Soviet Bloc collapse. Because papaya plantations constitute a significant portion of the 9.4 percent of irrigated tropical fruit acreage, the lack of foreign exchange to fix, improve, and operate irrigation equipment also probably contributed to lower yields. The production recovery was in part due to Cuba's emphasis on environment-preserving farming techniques that promoted compost production. In addition to improving soil fertility, composting increases soil moisture holding capabilities, thus improving papaya growing conditions.

Pineapples. Pineapple accounts for about three percent of all tropical fruit production (eight percent when plantains and bananas are excluded). Pineapple yields and production fell with Cuba's economic collapse of the early 1990s, but acreage harvested grew rapidly throughout the 1990s, and reached early 1960s levels by 2000. Since then, the pineapple area harvested has continued rapid growth. Yields remained stagnant throughout the 1990s and only recently showed some slight recovery.

With a three-year life span, the yield consequences of the collapse was somewhat delayed. Pineapple production benefited from irrigation programs in the late 1970s and 1980s. Loss of irrigation inputs would have reduced yields and production, but these losses were offset by other factors such as the environment-preserving farming practices of the 1990s and increased production of higher quality *in vitro* seedling plants by the Ministry of Agriculture in the latter part of the decade. The crisis, however, did eliminate processed pineapple production in the 1990s.

Avocados. Avocados account for a little more than one percent of all tropical fruit production (more than three percent when plantains and bananas are excluded). Production fell after the U.S. embargo eliminated Cuban avocado exports to the United States and is now used essentially for domestic consumption. Stability in avocado area is most likely attributable to the avocado's long productive life span (about 50 years). Yield and production decreases were likely due to the lack of purchased production inputs during this period.

Tropical Fruit Processing Industry. Most of Cuba's tropical fruits are consumed fresh, but processed tropical fruit products are still important. Primary processed products are juice and fruit pulps; fruit slices and chunks; grated coconut in syrup; guava paste; bases for soft drinks; jellies, and jams. Most tropical fruit-based products are sold domestically, some in the tourist industry.

Processed tropical fruit production increased during the 1960 to 1980 period as tropical fruit production increased. As the proportion of tropical fruit consumed fresh increased during the 1980s, however, the share of tropical fruit sent to processors declined and dampened processed tropical fruit production growth rates.

With the Soviet Bloc dissolution and the resultant Cuban economic collapse, tropical fruit production fell. As a result, processed tropical fruit production fell more than 40 percent. Also contributing to this decline was the impact of the economic collapse on the processors as the resulting loss of inputs greatly reduced their processing capacities.

The tropical fruit processing industry still maintains a domestic focus, although domestic demand outside of the tourist sector is constrained by Cuba's low incomes. While the processing industry has begun to recover, the fuel, electricity, and container shortages continue to exist. Plants still in production also need repairs and modernization.

Vegetable, Pulse, and Tuber and Root Crops

Cuba was an important supplier of winter fresh vegetables to the United States prior to the 1959 Revolution. Tomatoes and cucumbers were Cuba's most significant vegetable exports to the United States. Other exports included peppers, eggplant, and tropical root crops. Most shipments from Cuba were in the winter months, from January to March, when the frost and freeze risks in Florida are the highest. These are the months when Florida and Mexico are the major suppliers of fresh vegetables throughout the U.S. market.

Despite not having access to the U.S. market, Cuba increased its horticultural crop acreage significantly through the 1960 to 1980 period. Production acreage for horticultural crops increased about four-fold between 1970 and 1981, then increased again in the late 1980s when Cuba had more acreage planted to tomatoes, cucumbers, boniato, and malanga than Florida. Even in the late 1980s, however, when Cuba had its full levels of economic support and subsidization from the former Soviet Union (which included large volumes of imported agricultural chemical inputs, agricultural equipment, and fuel), Cuba's horticultural crop yields were only a fraction of Florida's yields.

In the years immediately following the economic crisis in Cuba that was initiated by the loss of preferential trading relationships and support from the former Soviet Union, agricultural production and yields of these crops declined further. By 1994, Cuba's vegetable production had fallen to less than half of the peak production volumes of the late 1980s. After Cuba's economic freefall bottomed out in the mid-1990s, however, and the economy began to show slow growth, non-sugar agricultural production began to recover as well. For some horticultural crops and commodities, this growth was quite significant, with reported production volumes increasing by more than 10-fold between the lowest levels of the 1990s until around 2003. Since 2004, however, Cuba's non-sugar agricultural production volumes have begun to decrease.

The lack of geographically close major markets (particularly important for highly perishable commodities) since the U.S. embargo was imposed and the inefficiencies and strictures of its centrally planned economy have constrained Cuba's ability to develop an export market for its vegetables.

Cuba does not import appreciable volumes of fresh fruits and vegetables, presumably because of the cost, the logistical difficulties and expense of transporting perishable commodities, the lack of domestic purchasing power in the economy, and the budget constraints facing the Cuban government. The exception to this, for fresh fruit and vegetable imports, is imports for the tourist trade. Several foreign firms have entered into joint ventures with the Cuban government for domestic production of fresh fruits and vegetables for tourist hotels and restaurants. It has not been possible to obtain information on these joint ventures, although some success presumably has been achieved because Israeli and Chilean joint ventures supply fresh citrus and processed citrus juices and other juices to the tourist industry and Sherritt International's Sherritt Green operation supplies some fresh vegetables to the tourist hotels in Cuba.

Livestock and Poultry

Because of lack of feed, imported and domestic, since the *Special Period*, Cuba has placed an emphasis on pig and poultry production because poultry and pigs are more efficient converters of feed. Furthermore, many hectares of pasture land converted to sugarcane prior to the 1990s have not been returned to their original use, having essentially been abandoned for lack of resources to reestablish them as pasture. Lack of foreign exchange to purchase imported feed may be the most significant factor affecting Cuban livestock and poultry production.

Cattle. Cuba's cattle population today is 20 percent less than it was in 1959. During the past several years, cattle numbers have remained relatively stable at between 3.7 and 4 million head. Ration stores no longer stock beef, and it is illegal for the small in-home restaurants to serve beef unless they have paid a special tax. Beef can be purchased in tourist hotels and at stores selling food for Convertible Pesos (CUCs).

Cuba's cattle industry has not been affected by the lack of imported feed as much as poultry and pig production. Cuba's eastern provinces offer fertile soils and favorable climatic conditions; however, drought in recent years has affected pasture productivity. Lack of genetic improvement of breeding stock and poor management are other negative factors affecting cattle production.

Prior to 1990, the state sector managed 75 percent of the cattle population. Since transforming many of the state farms to cooperatives, management of the majority of cattle has shifted from the state sector to the non-state sector.

Pigs. Following the loss of Soviet support at the end of the 1980s, the pig population dropped to about 1 million but recovered to more than 2 million in the mid-1990s. Pig numbers have remained relatively stable since 2002 at about 1.6 million. One-fourth of the pig population in 2006 was still in state ownership. The state sector accounted for about one-third of both the births and the deaths reported.

As in the situation with beef cattle, the average slaughter weight of pigs has dropped (from 165 pounds in 1990 to 75 pounds in 1992). In 1993, the average weight began to increase but is still below the average weight before the *Special Period*.

Poultry. The total poultry inventory at the end of 2006 was nearly 30 million. About 75 percent of the inventory was reported by state enterprises. Slightly more than half of the state poultry population was classified as egg-layers.

In an effort to offset the lack of poultry feed in the *Special Period*, Cuba encouraged urban production of chickens. An alternative to specialized poultry production was developed. Birds requiring less feed and management were made available to families to manage using local grains and vegetables for feed.

Meat, Milk, and Eggs. Although beef consumption has fallen more than 50 percent since the *Special Period*, chicken meat and pork consumption have increased. Milk and egg consumption have fallen.

Beef consumption per capita in 2006 was less than half the 1990 amount and the lowest of any year since 1990. It fell from 29 grams to 14 grams per capita per day. On the other hand, pork consumption per capita per day increased steadily from 20 grams to 26 grams. Chicken meat also increased from 31 grams per capita per day in 1990 to 56 grams in 2005.

Fresh, whole milk consumption in 1990 was 307 grams per capita per day. By 2005, it had dropped to 254 grams. Egg consumption has also fallen since the beginning of the *Special Period*, but less severely. In 1990, Cubans consumed 21 grams of eggs per capita per day. That number fell in the latter part of the 1990s and early 2000s, but increased to 19 grams in 2005.

Coffee

Cuban coffee is prepared from finely-ground, dark-roasted coffee. It is prepared espresso style and sweetened with sugar during the brewing process. It is known for its high caffeine content and a strong, smooth, sweet flavor. Often it is served with steamed milk.

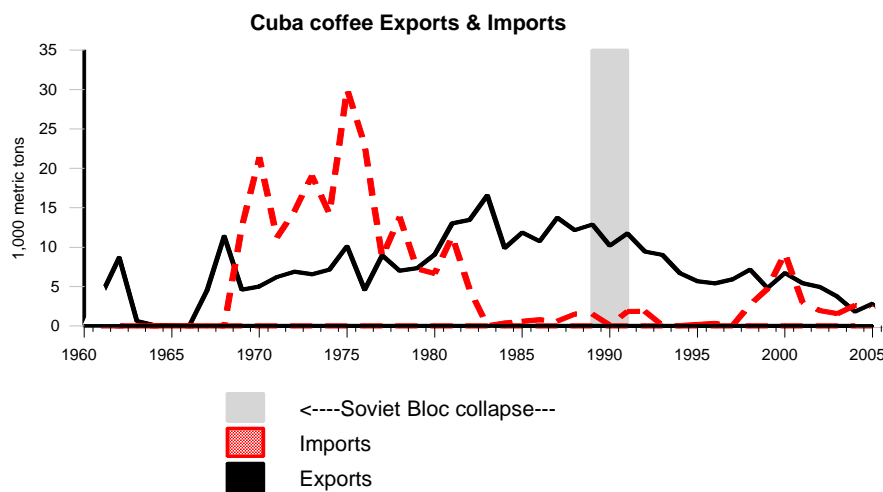
Prior to the Castro era, Cuba's coffee industry prospered. In the mid 1950s, Cuba was exporting more than 20,000 metric tons of coffee beans per year. Cuban coffee sold at premium prices on world markets. Much of that coffee was exported to Europe, particularly the Netherlands and Germany. Little was sold in the United States as U.S. consumers were unwilling to pay a premium for Cuban coffee. Currently, Japan and France are Cuba's major coffee export markets, with smaller amounts going to Germany, the United Kingdom, Canada, and New Zealand [fig. 29].

All coffee from Cuba is exported by Cubaexport, which pays a government-regulated, fixed price to coffee growers and processors for their coffee.

"Cuban coffee" is sold in the United States by several suppliers, including Café Pilon, which was a popular coffee brand in Cuba prior to the Revolution. Although sold as Cuban coffee, the coffee beans come from other countries. Producers contend that it is the roasting, grinding, and brewing processes, not the geographic origin of the beans, which determine Cuban coffee attributes.

After the Revolution, Cuba's coffee production suffered a long period of decline. Initially, the decline was due to revolutionary activity in the Sierra Maestra Mountains, Cuba's major coffee growing area in the early 1960s. Other factors underlying the decline include the nationalization of coffee farms, the loss of coffee production experts, the migration of low-income coffee workers to higher paying urban jobs, and government decisions allocating resources to other areas of the country. For example, the government diverted significant resources from productive to less productive growing areas near Havana that could operate with volunteer harvest labor from the city. This effort failed. By the end of the 1960s, coffee production was at 1930s levels, and by the 1970s production was at 1920s levels.

Figure 29: Cuba's coffee exports rose to about half of the production in the early 1990s, and then fell to about 28 percent of production in the mid-2000s.



The 1980s turn around in coffee production in Cuba was a result of a government decision to increase plantings in an attempt to reduce coffee imports and expand coffee exports. With the 1989 to 1991 Soviet Bloc dissolution, the coffee sector was hit by the Cuban economic collapse that drastically cut commercial agricultural production inputs and energy supplies, as well as created a migration of rural coffee workers to cities that left depopulated mountainous areas and many abandoned coffee plantations. This migration occurred in spite of government efforts to improve roads, schools, and medical care facilities in the remote areas where coffee was grown. This loss of experienced workers forced Cuba to rely on unskilled student workers to go into the mountains to help harvest coffee. As a result of all these factors, coffee production has remained stagnant. Production was detrimentally impacted in the late 1990s from drought and hurricanes. Only about two percent of arable land in Cuba produces coffee today.

There is little, if any, foreign investment in Cuba's coffee sector. Most production was no longer controlled by state-run farms by the mid-1990s. Much of the production was transported to markets by traditional methods instead of by trucks. Traditional air-drying methods, instead of mechanical dryers, were also used to dry the coffee beans for export.

To maintain coffee exports and provide needed foreign exchange, Cuba has restricted domestic consumption through a rationing program (two ounces per adult every two weeks). Cuba limits the availability of its coffee to keep prices high. As a result, domestic per-capita coffee consumption dropped from about 12 pounds per year in the late 1950s to three pounds per year in 2001. In recent years, Cuba has imported cheap coffee to mix with the lower grades of non-exported Cuban coffee for domestic consumption.

Fishery

Prior to the Revolution, Cuba's commercial fishing industry was concentrated in near-shore waters, targeting traditional and indigenous fin fish and shellfish species. These commercial catches were primarily directed to the Cuban tourist industry. As a result of the Revolution, however, the structure and conduct of the Cuban fishing industry changed dramatically. The Castro government nationalized all fishing companies and then proceeded to restructure the industry with political goals in mind. Cuba saw a prosperous fisheries industry as a way to increase political stability in Cuba's coastal areas at a time when threats of invasion from the United States made coastal security an important issue.

Because the Cuban government sought to modernize and expand its fleet to increase domestic food supplies as well as expand export revenues, Cuba began working closely with the Soviet Union. The Soviets were seeking a base of operations that would allow them to expand their fishing activities in the Atlantic. Cuba provided ideally located port facilities from which Soviet ships could operate and perform ship repairs and maintenance. In exchange, the Soviets provided economic subsidies and technical assistance to help Cuba expand its distant water fishing fleet. As a result, Cuba developed the most technically advanced fishing fleet in all of Latin America in the 1980s. Over time, their distant-water trawlers increasingly operated off the coasts of southern Africa and Canada, and on both the Atlantic and Pacific coasts of South America. The majority of the catch for these fleets were relatively low value fin fish species, primarily for domestic consumption in Cuba, although some species were exported. At the same time, Cuba expanded its near-shore harvesting of high-value species such as lobster, shrimp, snapper and grouper. These products were targeted primarily for the export market.

With the Soviet Bloc collapse, Cuba could no longer obtain fuel to operate its distant-water fleet of ships. By 1993/94, the majority of these vessels were docked in Cuban ports and left idle. Rust and deterioration quickly took their toll and Cuba rapidly dropped from the ranks of significant market participants in the high seas fishing industry.

This was not the case for Cuba's near-shore fishing activities. Perceiving a market opportunity, several European firms invested in facilities for processing and packaging Cuba's high-value lobster and shrimp harvest. They also provided shipping and marketing expertise for exporting these products to European and Canadian markets. The success of these joint venture operations is evidenced by the important role that exports of shellfish (lobster and shrimp) now play in Cuba's export profile.

The Cuban government and foreign firms have invested in aquaculture operations in Cuba. Data and information on these joint venture operations are difficult to obtain but reports suggest that they have shown only limited promise.

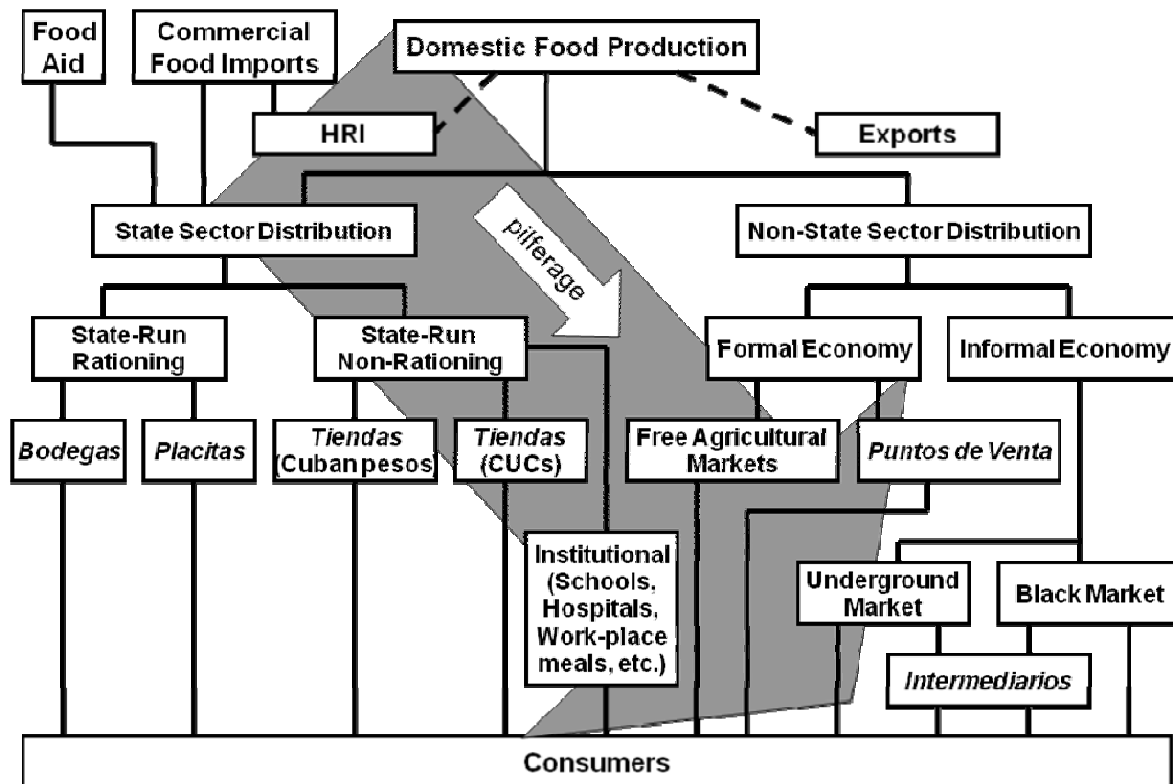
Appendix 1: Summary of Flowcharts on Cuba's Food Supply and Distribution System and the Hard Currency Food Chain: Implications for U.S. Exporters

This appendix presents brief descriptions of two flowcharts used in the preparation and presentation of the Cuba Food and Agriculture Situation Report for USDA/FAS and is intended as a companion piece to the full Report. References in the text to the various entities represented by the boxes in the flowcharts are in **CAPS AND BOLD**.

CUBA'S FOOD SUPPLY AND DISTRIBUTION SYSTEM

Appendix 1, Figure 1 (also Figure 16 in the body of this report) graphically depicts the movement of products through Cuba's food procurement, collection, distribution and marketing channels. Moving from the top left of the flowchart to the bottom right:

Appendix 1, Figure 1: Cuba's food supply and distribution system



FOOD AID: Cuba receives food aid from foreign countries (e.g., the EU) and international NGOs (e.g., the United Nations) typically in response to food shortages resulting from weather events such as drought, hurricanes, etc. These **FOOD AID** imports move directly into the domestic food supply through the **STATE SECTOR DISTRIBUTION** system.

COMMERCIAL FOOD IMPORTS: Cuba regularly trades with over 80 countries throughout the world. Cuba imports food and agricultural products from many of these countries, including the United States, the most important supplier since 2003. The majority of Cuba's commercial food imports by both volume and value are directed into the domestic food supply through the **STATE SECTOR DISTRIBUTION** system although high value imports typically move into the **HOTEL, RESTAURANT AND INSTITUTIONAL (HRI)** segment of the market. (High value imports also move through the **STATE SECTOR DISTRIBUTION** system into the hard currency retail stores, **TIENDAS IN CUCs - CUBAN CONVERTIBLE PESOS**, which will be discussed later in this document.)

DOMESTIC FOOD PRODUCTION: The majority of Cuba's non-sugarcane domestic food and agricultural production moves through the **STATE SECTOR DISTRIBUTION** system to feed the domestic population. Some high value products produced domestically (e.g., fresh and processed citrus, shellfish, cigars, coffee and rum) are **EXPORTED** or sold in the **HRI** sector. These high value products are typically produced on farms or in processing facilities with significant participation by foreign joint venture investors.

It is important to note that after the collapse in Cuban agricultural production that occurred in the early 1990s following the loss of Soviet economic support and subsidization, beginning in 1994 Cuba's non-sugarcane agricultural output increased steadily for a decade. However, Cuba's non-sugarcane agricultural production has been declining since 2004. Production decreases in 2004 were the result of a combination of severe drought conditions throughout most of Cuba during a portion of the year and several severe hurricanes. Weather and rainfall patterns generally improved in 2005 and 2006 but production declines continued. At the time of this writing, weather patterns for 2007 have been favorable for agricultural production although recent heavy rains in some regions of Cuba and resulting flooding have caused damage to agriculture (as well as housing and infrastructure, etc.), which suggests the possibility of another year of declining agricultural output. Any such declines in output will necessitate increased food imports, portions of which could be supplied by U.S. firms.

STATE SECTOR DISTRIBUTION: All but Cuba's smallest private farmers have a quota of agricultural output that they are required to sell to Cuba's state food collection agency **ACOPIO**, which collects quota agricultural production (**DOMESTIC FOOD PRODUCTION**) from farmers throughout the island. These food supplies, along with **FOOD AID SUPPLIES** and portions of Cuba's **COMMERCIAL FOOD IMPORTS** are distributed to a wide range of retail Cuban food outlets through the **STATE SECTOR DISTRIBUTION** system.

STATE RUN RATIONING: The majority of the food supplies moving through Cuba's **STATE SECTOR DISTRIBUTION** system are channeled into the **STATE RUN RATIONING** system. The Cuban ration stores (**BODEGAS** and **PLACITAS**) are supposed to provide sufficient food supplies to feed Cuban families at very inexpensive, subsidized prices.

However, the ration system has not provided enough food to feed the Cuban populace since the dissolution of the Soviet Union in 1991. At present the ration system is estimated to provide about two-thirds of the dietary needs of the Cuban people.

The failure of the Cuban food rationing system necessitated an expanded role for Cuba's **STATE RUN NON-RATIONING** food retail outlets (*TIENDAS IN CUBAN PESOS* and *TIENDAS IN CUCs*, *CUBAN CONVERTIBLE PESOS*) as well as the creation of new outlets in the **NON-STATE SECTOR DISTRIBUTION** system, the **FREE AGRICULTURAL MARKETS** and *PUNTOS DE VENTA* (Points of Sale), both of which are discussed later in this document.

STATE RUN NON-RATIONING: Prices charged for products in the **STATE RUN NON-RATIONING** stores (*TIENDAS IN CUBAN PESOS* and *TIENDAS IN CUCs*) are higher than those in the subsidized **STATE RUN RATIONING** stores. This is particularly true for the *TIENDAS IN CUCs* because of Cuba's dual currency system under which the CUC (convertible Cuban peso) is worth about 26 regular Cuban pesos (CUP or *moneda nacional*). Given the low salaries of Cuban citizens (averaging about 300 to 500 CUP per month, which is equivalent to \$12 to \$15 U.S. per month) Cubans have little disposable income from their regular earnings for purchases in the *TIENDAS*. Therefore, a large proportion of the funds used to purchase goods in the **STATE RUN NON-RATIONING** stores come from remittances from family members in the United States and elsewhere overseas, or from tips earned working in the tourist sector, or from black market activities.

The Cuban government applies a markup of as much as 240 percent or more on food products sold in the *TIENDAS IN CUCs*. Thus, sales in these stores are an important source of hard currency earnings for the Cuban government which, in turn, are reportedly used to fund continued cash purchases from the United States.

INSTITUTIONAL MEALS: Cuban citizens also obtain food from "institutional meals" which are meals that employees receive at work, students receive at school and patients receive at hospitals. Food supplies for these outlets are provided by the **STATE RUN NON-RATIONING** system.

NON-STATE SECTOR DISTRIBUTION: This sector obtains its food supplies from "surplus" production, which is production by farmers beyond the quota volumes that they are obligated to sell to the state food collection agency *ACOPIO*. The primary outlets within this segment of the food distribution system are the **FORMAL ECONOMY OUTLETS**, the **FREE AGRICULTURAL MARKETS** and the *PUNTOS DE VENTA* (Points of Sale). Both of these are new retail outlets that were opened after 1993 to try to improve food availability to the Cuban people, primarily those without access to hard currencies since sales in both of these markets are conducted in regular Cuban pesos (CUPs). Prior to the opening of these outlets, large volumes of "surplus" and pilfered food products were moving through the **BLACK MARKET** and these transactions were taking place in hard currencies only. Cubans without access to hard currencies were having a particularly difficult time finding food for their families in the early 1990s, and opening these two new types of markets helped to bring significant volumes of food out of the **BLACK MARKET**, making them more accessible to the broader citizenry.

INFORMAL ECONOMY: The informal economy is comprised of the **UNDERGROUND MARKET** and the **BLACK MARKET**. **UNDERGROUND MARKETS** involve the sale of products that can be legally sold outside of the state system at the **FREE AGRICULTURAL MARKETS** and the **PUNTOS DE VENTA**. **UNDERGROUND MARKET** sales are made direct to final **CONSUMERS** or to **INTERMEDIARIOS** (intermediaries) who transport, mark up and resell the products.

The **BLACK MARKET** operates in a manner similar to the **UNDERGROUND MARKET** except that it involves the sale of products that are illegal to sell or purchase outside of the state system (e.g., cattle, buffalo and equine meat, milk and derivatives, coffee, tobacco, cacao, potatoes, honey and sugar).

PILFERAGE: The grey arrow from top left to bottom right of the flowchart reflects the fact that there is pilferage of food supplies from the state sector to the non-state sector in volumes that the Cuban government acknowledges are significant although no estimates of actual volumes are available.

CUBA'S HARD CURRENCY FOOD CHAIN

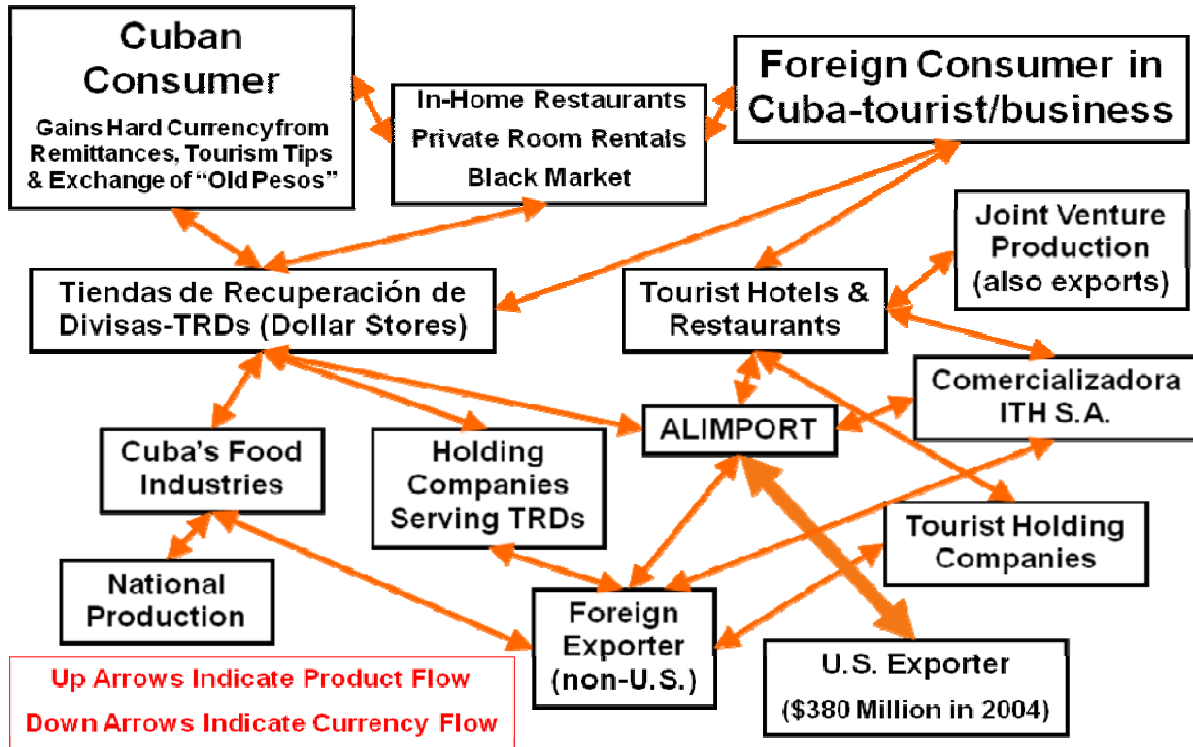
Appendix 1, Figure 2 graphically depicts the movement of food and agricultural products and monies through Cuba's hard currency^a food chain only; that is, it does not deal with food purchased with Cuban pesos (CUPs) through Cuba's food ration system or food outlets. Downward arrows indicate currency flows while upward arrows indicate product flow.

The boxes at the top left and top right corners of Appendix 1, Figure 2 (**CUBAN CONSUMERS** and **FOREIGN CONSUMERS**) represent sources of new hard currency flows being introduced into the Cuban hard currency food chain and the Cuban economy.

CUBAN CONSUMERS: Cuban consumers have access to hard currencies through a number of channels. The majority comes through remittances from family members overseas at levels estimated to be between \$800 million and \$1 billion annually. Cubans also obtain hard currencies as tips from working in the tourist sector. These funds represent an important source of consumer purchasing power in a low income country of only 11 million people, as well as a significant injection of hard currency into the Cuban economy.

^a Hard currencies are foreign currencies such as Euros, U.S. dollars, etc., as well as Cuban convertible pesos (CUCs) which are obtained in Cuba in exchange for other hard currencies. (See pages 20-21 in the body of the report for additional detail about Cuba's dual currency system.)

Appendix 1, Figure 2: Cuba's hard currency food chain



FOREIGN CONSUMERS: Foreign consumers include not only tourists but also foreigners living in Cuba such as embassy personnel, foreign employees of foreign joint venture businesses in Cuba (Cuban employees of foreign joint venture companies are paid in Cuban pesos, CUPs), etc. **FOREIGN CONSUMERS** have disposable income to spend on food (and other) products and, as such, they are another important source of hard currency for the Cuban economy.

Retail Outlets:

The “retail” level of sales in Cuba’s hard currency food chain is comprised of three segments: **IN-HOME RESTAURANTS, PRIVATE ROOM RENTALS AND THE BLACK MARKET** (the middle box in the top row of boxes in Appendix Figure 2); **TIENDAS DE RECUPERACIÓN DE DIVISAS or TRDs** (literally, shops for the recovery of foreign currency, also referred to as **TIENDAS IN CUCs** in Appendix Figure 1); and **TOURIST HOTELS AND RESTAURANTS** (the latter two segments are represented in the second row of boxes from the top in Appendix Figure 2).

IN-HOME RESTAURANTS, PRIVATE ROOM RENTALS AND THE BLACK MARKET: **FOREIGN CONSUMERS** inject hard currencies into the Cuban economy and food chain through purchases at **IN-HOME RESTAURANTS** (known as *paladares*), through **PRIVATE ROOM RENTALS** that may involve the purchase of some meals, and through

purchases in the underground and **BLACK MARKETS**. Because of the relatively low levels of income of **CUBAN CONSUMERS**, their purchases at **IN-HOME RESTAURANTS** are generally limited, and they have no need for private room rentals. However, **CUBAN CONSUMERS** do participate in the underground and **BLACK MARKETS**.

TIENDAS DE RECUPERACIÓN DE DIVISAS (TRDs): **CUBAN CONSUMERS** are permitted to purchase food in the **TRDs** with Cuban convertible pesos (CUCs) obtained by exchanging hard currency remittances from overseas, or from tips received in the tourist sector. The **TRDs** stock basic foods as well as higher value food products not otherwise available, and prices in the **TRDs** are higher than in the peso-denominated stores in the Non-State Sector discussed in Appendix Figure 1. For that reason, **CUBAN CONSUMERS** typically only purchase limited quantities of their food needs in the **TRDs**. However, **FOREIGN CONSUMERS** who live in Cuba purchase a larger share of their food from these outlets and tourists also purchase in these outlets. **IN-HOME RESTAURANTS** purchase some of the foods they prepare and serve from the **TRDs**.

TOURIST HOTELS AND RESTAURANTS: **TOURIST HOTELS AND RESTAURANTS** in Cuba are either owned and operated by the Cuban government or co-owned/operated under joint venture arrangements with foreign partners. The Cuban government captures the hard currency payments directly from tourists staying or dining in the government-owned hotels and restaurants, and indirectly from the joint venture properties in the form of payments from the joint venture. The Cuban government can use these (and all) hard currency earnings to purchase food products from firms in the United States or other foreign countries which, in turn, can be sold in Cuba either within or outside of the hard currency food chain.

Wholesale Outlets:

The third row of boxes from the top in Appendix Figure 2 represents the “wholesale” level of the marketing chain in Cuba’s hard currency food chain. It is comprised of a wide range of enterprises and agents including: **CUBA’S FOOD INDUSTRIES, HOLDING COMPANIES SERVING THE TRDs, ALIMPORT, COMERCIALIZADORA ITH, S.A.,** and **TOURIST HOLDING COMPANIES**. This is the level of the distribution chain which is of the most relevance to U.S. suppliers since firms selling into Cuba make their sales at this level exclusively through the Cuban enterprise **ALIMPORT** (as discussed later in the paper).

CUBA’S FOOD INDUSTRIES: **CUBA’S FOOD INDUSTRIES** enterprises are involved in the processing and/or packaging of domestically produced or imported food products. They supply the **TRDs** in the hard currency food chain but may also sell some products to non-hard currency stores in Cuba’s State Run Non-Rationing system (i.e., **TIENDAS IN CUBAN PESOS** as discussed in Appendix Figure 1). Many of the enterprises operating within this segment have foreign joint venture capital and partners, and these joint venture enterprises prefer to sell to the **TRDs** where prices are higher and they can receive payment for their goods in CUCs, which can be converted to hard foreign currencies at Cuban banks.

HOLDING COMPANIES SERVING THE TRDs: The Cuban government has established a series of **HOLDING COMPANIES** whose job it is to supply the **TRDs** with imported products.

These enterprises do not perform any processing or packaging and instead play a wholesale brokerage and distribution function in the food chain.

COMERCIALIZADORA ITH, S.A., and TOURIST HOLDING COMPANIES:

COMERCIALIZADORA ITH, S.A is a Cuban enterprise established with the specific role of supplying **TOURIST HOTELS AND RESTAURANTS** with imported goods. There are a number of other **TOURIST HOLDING COMPANIES** that play the same role, some of which operate in conjunction with foreign joint venture hotels.

ALIMPORT: **ALIMPORT** is the Cuban government enterprise that is assigned responsibility as the exclusive agent for negotiating and arranging purchases from U.S. food and agribusiness firms. From the flowchart, it is apparent that **ALIMPORT** has a unique and pivotal role in Cuba's hard currency food distribution chain. It is the only Cuban entity authorized to purchase from both **U.S. EXPORTERS** and other **FOREIGN EXPORTERS**, and it is the principal Cuban enterprise supplying both the **TRDs** and the **TOURIST HOTELS AND RESTAURANTS**. **ALIMPORT** even supplies some products to **COMERCIALIZADORA ITH, S.A** for resale to **TOURIST HOTELS AND RESTAURANTS**.

CONCLUDING OBSERVATIONS

There is no indication that the Cuban government intends to modify the system it presently has in place for the purchase of food and agricultural products from U.S. companies. Even though the present system constrains U.S. firms to dealing with a single purchasing entity in **ALIMPORT**, U.S. companies are dealing with an enterprise with a central and unique role in Cuba's food procurement and distribution system. Moreover, **ALIMPORT** serves Cuba's food rationing system, as well as its regular peso (CUP) and convertible peso (CUC) food retail channels, and U.S. products are regularly being distributed through all of these channels.

Declining domestic non-sugar agricultural production patterns suggest an immediate need for increasing levels of food imports to feed the Cuban people. Cuba's tourist arrivals leveled off last year but the Cuban government is making efforts to reinvigorate growth in this sector of the economy and, even if it takes time before the government efforts show positive results, Cuban tourist arrivals are unlikely to decline appreciably in the short term. Thus food demand for the tourist trade would be expected to at least hold steady, if not grow. Similarly, the demand for food by foreign consumers living in Cuba is not anticipated to decline. On balance, therefore, indications are that Cuba will need to increase its food imports in the near term.

The manner in which the Cuban government is able to obtain hard currency from **CUBAN CONSUMERS** (as they spend their remittances) and **FOREIGN CONSUMERS** through its hard currency food chain suggests that it has ways of generating the hard currencies at high enough margins to allow continued and even expanded purchases of food and agricultural products from U.S. companies. All of this said, it must be remembered that the Cuban government has demonstrated that economics is not always the motivating force behind its decisions to purchase from U.S. companies as there can be political considerations driving their decisions as well.

In early 2007 the Cuban government indicated its intention to purchase about the same value of food from the United States during the year as it had in 2006. Through April of 2007, the value of Cuba's year-to-date purchases was running well behind 2006 levels, but Cuba's expanded purchases from the United States from May through August of 2007 have Cuban imports from the United States running 19 percent ahead of year-to-date figures for 2006.

Damage to Cuban agriculture from recent heavy rains and resultant flooding suggest that Cuba will need to continue to expand its food and agricultural imports to feed its people. Whether the Cuban government chooses to make these purchases from the United States remains to be seen. However, the speed with which U.S. firms can respond to Cuba's short term food needs because of the geographic proximity and the ability to ship smaller loads more cost-effectively than suppliers halfway around the world provide distinct advantages for U.S. exporters.

Appendix 2: Cuban Agriculture and Food Trade Data

Appendix 2, Table 1: Food and agricultural imports became a larger portion of total imports as Cuba struggled to deal with domestic food shortages.

Cuban Total Imports and Food Imports			
Year	Total Merchandise Imports	Food and Agricultural Imports	
		Value	Percent of Total Imports
	<i>Million Pesos</i>	<i>Million Pesos</i>	<i>%</i>
1988	7,602.9	816.3	10.74
1989	8,139.8	1,011.7	12.43
1990	7,416.5	903.8	12.19
1991	4,233.8	879.1	20.76
1992	2,314.9	529.6	22.88
1993	2,008.2	496.6	24.73
1994	2,016.8	491.4	24.37
1995	2,882.5	651.1	22.59
1996	3,569.0	728.1	20.40
1997	3,987.3	800.5	20.08
1998	4,181.2	777.4	18.59
1999	4,349.1	818.8	18.83
2000	4,795.6	744.2	15.52
2001	4,793.2	823.6	17.18
2002	4,140.8	798.0	19.27
2003	4,612.6	947.7	20.55
2004	5,562.0	1,119.8	20.13
2005	7,528.1	1,235.9	16.42
2006	9,420.2	1,328.6	14.10

Source: *Anuario Estadístico de Cuba*, various issues

Appendix 2, Table 2: The United States is Cuba's largest supplier of agricultural imports

Cuban Food and Agricultural Imports by Country						
Partner Country	2002	2003	2004	2002	2003	2004
	<i>1,000 U.S. Dollars</i>			<i>% Share</i>		
World	832,433	1,002,454	1,172,409	100.00	100.00	100.00
United States	172,670	318,167	427,169	20.74	31.74	36.44
Vietnam	62,018	72,709	133,504	7.45	7.25	11.39
Canada	78,438	55,310	82,283	9.42	5.52	7.02
Argentina	14,878	12,164	76,631	1.79	1.21	6.54
Brazil	54,996	29,849	65,678	6.61	2.98	5.60
Spain	50,502	57,613	54,630	6.07	5.75	4.66
France	70,215	102,700	49,555	8.43	10.24	4.23
New Zealand	37,376	38,241	48,864	4.49	3.81	4.17
Italy	47,550	56,707	44,648	5.71	5.66	3.81
China	95,677	70,429	33,531	11.49	7.03	2.86
Chile	18,959	27,613	31,674	2.28	2.75	2.70
Mexico	18,726	22,256	20,436	2.25	2.22	1.74
Colombia	2,240	43,504	16,779	0.27	4.34	1.43
Netherlands	29,420	18,731	16,490	3.53	1.87	1.41
Germany	7,653	7,878	9,834	0.92	0.79	0.84
Czech Republic	9,016	8,047	8,026	1.08	0.80	0.68
Thailand	178	395	7,179	0.02	0.04	0.61
Uruguay	0	550	6,652	0.00	0.05	0.57
Poland	7,353	15,920	5,186	0.88	1.59	0.44
Belgium	6,016	9,541	4,416	0.72	0.95	0.38
Guatemala	4,620	6,173	4,324	0.55	0.62	0.37
Denmark	293	432	2,983	0.04	0.04	0.25
Dominican Republic	1,929	2,924	2,964	0.23	0.29	0.25
Ireland	37	265	2,343	0.00	0.03	0.20
Ecuador	1,386	2,398	2,292	0.17	0.24	0.20
United Kingdom	4,175	1,533	1,997	0.50	0.15	0.17
Other Countries	36,108	20,403	12,342	4.34	2.04	1.05
Note: Country list ranked by country share of Cuba's 2004 imports.						
Source: UDG, Agricultural Total, Group 2						

Appendix 2, Table 3: U.S. agricultural exports to Cuba

U.S. Agricultural Exports to Cuba				
6-digit Harmonized System (HS) Code	Commodity Description	2004	2005	2006
		<i>1,000 U.S. Dollars</i>		
Ag. Total	Group 2 (2007)	382,305	345,729	327,617
100190	Wheat (Other Than Durum Wheat), and Meslin	55,311	45,618	51,433
020714	Chicken Cuts and Edible Offal (Including Livers), Frozen	59,031	56,538	43,804
100590	Corn (Maize), Other Than Seed Corn	57,501	54,914	42,624
120100	Soybeans, Whether or Not Broken	27,933	32,723	31,742
230400	Soybean Oilcake & Other Solid Residue, Wh/Not Ground	15,212	15,095	26,672
100630	Rice, Semi- or Wholly Milled, Polished Etc. or Not	61,769	32,139	23,642
150790	Soybean Oil, Refined, and Fractions, Not Modified	18,709	24,101	19,515
100610	Rice in the Husk (Paddy or Rough)	0	5,954	15,901
040210	Milk Powder, Not Exceeding 1.5% Fat	26,653	29,691	12,561
071310	Peas, Dried Shelled, Including Seed	4,766	10,144	9,382
071339	Beans Nesoi, Dried Shelled, Including Seed	2,799	533	8,103
020329	Meat of Swine, Nesoi, Frozen	477	1,910	7,451
120810	Flours and Meals of Soybeans	17,845	3,433	7,403
230310	Residues of Starch Mfr and Similar Residues	0	887	6,712
020322	Meat, Swine, Hams, Shoulders, Etc., Bone In, Frozen	996	1,552	2,879
071340	Lentils, Dried Shelled, Including Seed	0	987	2,250
020319	Meat of Swine, Nesoi, Fresh or Chilled	0	0	1,974
230990	Animal Feed Prep Except Dog or Cat Food, Retail Pk	13	1,977	1,520
160241	Prepared or Preserved Swine Nesoi, Hams, Etc.	0	3,145	1,470
110290	Cereal Flours, Nesoi	0	0	1,456
150710	Soybean Oil & Fractions, Crude, Whether or Not Degummed	4,614	1,637	1,427
110313	Groats and Meal of Corn (Maize)	0	0	1,150
150200	Fats, Bovine, Sheep or Goat, Raw or Rendered	0	961	924
080810	Apples, Fresh	525	722	887
020727	Turkey Cuts and Edible Offal (Including Liver) Frozen	1,418	801	580
200290	Tomato Paste Etc., Not Prepared with Vinegar Etc.	441	1,259	416
520100	Cotton, Not Carded or Combed	2,922	1,593	394
151710	Margarine, Excluding Liquid Margarine	0	100	264
050400	Animal (Not Fish) Guts, Bladders, Stomachs & Parts	0	0	236
210390	Sauces Etc., Mixed Condiments and Seasonings Nesoi	328	165	220
020712	Meat & Offal of Chickens, Not Cut in Pieces, Frozen	760	909	207
020649	Offal of Swine Except Livers, Edible, Frozen	0	0	196
230910	Dog and Cat Food, Put Up for Retail Sale	0	0	190
151790	Edible Fats & Oil Mixtures & Prepared Nesoi, Etc.	327	917	182
071333	Kidney Beans & White Pea Beans, Dri Shlld, Including Seed	16	4	175
190219	Pasta, Uncooked, Not Stuffed Etc., Nesoi	531	117	151

continued on next page

U.S. Agricultural Exports to Cuba				
6-digit Harmonized System (HS) Code	Commodity Description	2004	2005	2006
		<i>1,000 U.S. Dollars</i>		
080212	Almonds, Fresh or Dried, Shelled	0	0	139
080610	Grapes, Fresh	131	161	134
160100	Sausages, Similar Product Meat, Etc. Prepared Foods	0	0	133
200939	Juice of Other Single Citrus Fruit, Not Frozen, Nesoi	0	37	129
210690	Food Preparations Nesoi	342	88	114
020900	Pig & Poultry Fat Fresh, Chilled, Frozen, Salted, Dried or Smoked	22	166	105
020312	Meat, Swine, Hams, Shoulders, Bone In, Fresh or Chilled	0	856	88
160232	Prepared or Preserved Chicken Meat or Offal, Nesoi	0	0	82
020622	Livers of Bovine Animals, Edible, Frozen	0	0	71
170410	Chewing Gum, Whether or Not Sugar-coated	283	70	68
121020	Hop Cones, Ground, Powdered or in Pellets; Lupulin	0	0	62
020725	Turkeys, Not Cut in Pieces, Frozen	0	0	58
170219	Lactose in Solid Form and Lactose Syrup, Nesoi	14	0	43
200990	Mixtures of Fruit and/or Vegetable Juices	37	0	42
180690	Cocoa Preparations, Not in Bulk Form, Nesoi	69	0	39
220210	Waters, Incl Mineral & Aerated, Sweetened or Flavored	46	0	36
080820	Pears and Quinces, Fresh	34	96	34
070310	Onions and Shallots, Fresh or Chilled	14	0	29
080420	Figs, Fresh or Dried	0	12	26
080620	Grapes, Dried (Including Raisins)	116	60	25
110812	Starch, Corn (Maize)	0	0	19
130213	Vegetable Saps and Extracts of Hops	0	0	17
190230	Pasta, Prepared Nesoi	0	0	14
210111	Coffee Extracts, Essences Etc. and Prepared Food	0	0	5
120210	Peanuts (Ground Nuts) Raw, in shell	0	0	5
040490	Products of Natural Milk Constituents, Nesoi	0	0	4
040110	Milk & Cream, Not Concentrated, Not Sweetened, Nov 1% Fat	0	0	3
040291	Milk and Cream, Concentrated, Not Sweetened, Neso	0	39	0
230690	Oilcake Etc. from Vegetable Fats and Oils Nesoi	3,024	1,309	0
15091-	Olive Oil/Fractions, Virgin, Not Chemically Modified	9	16	0
220290	Nonalcoholic Beverages, Nesoi	80	20	0
080290	Nuts Nesoi, Fresh or Dried, Shelled or Not	0	5	0
200811	Peanuts, Prepared or Preserved, Nesoi	6	0	0
071220	Onions, Dried (Powder Etc), Not Further Prepared	23	61	0
090412	Pepper of the Genus Piper, Crushed or Ground	21	0	0
350400	Peptones, Other Proteins & Derivatives Etc.; Hide Powder	183	288	0
150100	Lard; Other Pig Fat and Poultry Fat, Rendered	107	0	0
020230	Meat of Bovine Animals, Boneless, Frozen	209	0	0
170211	Lactose & Lactose Syrup Cont 99% More Lactose by Wt	28	54	0
190190	Malt Extract; Flour, Meal, Milk Etc. Products Etc Nesoi	6,610	0	0
110710	Malt, Not Roasted	512	0	0
100110	Durum Wheat	2,204	5,088	0

continued on next page

U.S. Agricultural Exports to Cuba				
6-digit Harmonized System (HS) Code	Commodity Description	2004	2005	2006
		<i>1,000 U.S. Dollars</i>		
080410	Dates, Fresh or Dried	0	3	0
051199	Dead Horses, Swine Etc (Inedible) & Products Nesoi	23	152	0
350510	Dextrins and Other Modified Starches	12	0	0
021011	Hams, Shoulders & Cuts, Bone In, Salted, Dried, Smoked	34	0	0
110630	Flour, Meal & Powder of the Products of Chapter 8	10	1,314	0
081290	Fruit & Nuts Provisionally Preserved Inedible Nesoi	0	39	0
040690	Cheese, Nesoi, Including Cheddar and Colby	45	0	0
040630	Cheese, Processed, Not Grated or Powdered	34	0	0
071320	Chickpeas (Garbanzos), Dried Shelled, Including Seed	815	0	0
180631	Chocolate & Other Cocoa Preps, Not Bulk, Filled	133	172	0
180632	Chocolate & Other Cocoa Preps, Not Bulk, Not Filled	47	0	0
090620	Cinnamon & Cinnamon-Tree Flowers, Crushed or Ground	4	0	0
080211	Almonds, Fresh or Dried, in Shell	0	3	0
040700	Bird Eggs in the Shell, Fresh, Preserved or Cooked	983	288	0
010210	Bovine Animals, Live, Purebred Breeding	44	1,490	0
190590	Bread, Pastry, Cakes, Etc. Nesoi & Puddings	0	12	0
230330	Brewing or Distilling Dregs and Waste, W/Nt Pellet	0	1,158	0
210610	Protein Concentrates & Textured Protein Substances	1,372	620	0
121190	Plants & Parts, Etc. for Medicaments, Etc. Nesoi	0	9	0
200410	Potatoes, Prepared, Etc., No Vinegar, Etc., Frozen	43	0	0
160239	Prepared Etc. Poultry Meat, Except Turkey, Nesoi	0	28	0
160249	Prepared Etc. Swine Meat, Offal, Etc. Nesoi	110	0	0
090930	Seeds of Cumin	11	24	0
010410	Sheep, Live	0	48	0
210410	Soups and Broths and Preparations	80	0	0
100620	Rice, Husked (Brown)	2,279	1,111	0
071290	Vegetables Nesoi & Mixtures, Dried, No Further Prep	25	0	0
070990	Vegetables, Nesoi, Fresh or Chilled	22	0	0
040410	Whey & Modfd Whey, Wh/Not Concnrtd, Addt Swtnrs	531	0	0
220421	Wine, Fr Grape Nesoi & Gr Must W Alc, Nov 2 Liters	69	0	0
220429	Wine, Fr Grape Nesoi & Gr Must With Alc, Nesoi	16	0	0
170490	Sugar Confection (Incl Wht Chocolate), No Cocoa, Nesoi	0	166	0
170290	Sugar, Nesoi, Including Invert Sugar & Syrup	51	67	0
200580	Sweet Corn, Prepared/Preserved Nesoi, Not Frozen	4	0	0
210120	Tea Or Mate Extracts/Essences/Concentrates & Preps	36	0	0
210320	Tomato Ketchup and Other Tomato Sauces	6	0	0
070200	Tomatoes, Fresh or Chilled	7	0	0
091099	Spices, Nesoi	443	78	0