

VACHEZ INES / DIMITROUDI MARIA
AGRICULTURE IN CUBA



Una mujer recolecta habichuelas orgánicas en el organopónico La Sazón, en el barrio de Casino Deportivo de La Habana, que forma parte del sistema de agricultura urbana de Cuba. Crédito: Jorge Luis Baños/IPs

AGRICULTURE

HISTORY OF AGRICULTURE IN CUBA



Taino village, Cuba, engraving from the 19th century. Greater Antilles, 15th century. / Madrid, Biblioteca Nacional

Pre-colonial Agriculture

Agriculture has played a main role in the history and development of the Cuban island since the times of its first inhabitants, the Taínos.

Their main economic activity was the harvesting of manioc and a wide range of other products such as corn, peanut, pepper, pineapple, cacao, potatoes, cotton, tobacco and jackfruit.¹

The Decay of Agriculture

With the arrival of the Reign of Castilla in the XV century and their domination upon the island, the native “caciques” were dethroned and the population forced to work for the newcomers. Many of them died of new brought diseases such as smallpox. Agriculture ceased being the main economic activity, replaced by mining of gold and copper.



Workers harvesting sugar cane, Cuba, ca. 1908, / National Photo Company Collection, Library of Congress, Prints and Photographs Division, gift of Herbert A. French, 1947, Washington, DC. Courtesy of Library of Congress, National Photo Company Collection.



Part of the abandoned sugar refinery in the Cuban town of Hershey. / Photograph: Roger Atwood

The Rise of the Sugar Industry

When the crown started to exhaust the mineral extraction, they switched the economy to tobacco and sugar cane harvesting, becoming one of the main producers in the world during the end of XVII and beginning of XVIII century. The sugar cane was brought from Africa and introduced by the British in the neighboring islands. They considered it would grow properly in the humid and hot climate of the Caribbean.

In 1716 the so-called “Estanco del Tabaco” was introduced by the Spanish crown in order to monopolize the exports and imports of the island, as well as controlling the prices. The Real Company of Commerce of La Habana controlled the economy and managed the slave trade.²

British Invasion

The growing interest of Great Britain in the Latin American market of the XVIII century culminated with the conquest

of “La Habana” at the end of the Seven Years War in 1762. Along with the strengthening of the sugar cane industry, came a growth of enslaved Africans brought in to the island. The British domination had also lead to a strengthening of commercial relationships with the British colonies in North America (Philadelphia, New York, Boston). Nevertheless, Great Britain handed back the island to the Spanish crown after no more than a year of domination.³

The three Cuban Wars

A period of wars between the years 1869 to 1898, culminated first with the abolition of slavery and the “United States-Cuban-Spanish War” during which Spain gives away the complete control of the island to the United States. During this domination, sugar cane and tobacco became the only two agricultural products of the island. The consequences of the non-diversity in agriculture land, are still affecting the island in the present.⁴

The productive exclusivity of the island, created a strong dependency in matter of supply of other food products for the island inhabitants.

Agriculture and Revolution

When the army led by Fidel Castro won the revolution in 1959, the sanctions issued by the United States, forced Cubans to the URSS and the communist bloc in order to assure their economic subsistence. The Soviet Union supported Cuban agriculture by paying premium prices for Cuba's main agricultural product, sugarcane, and by delivering fertilizers. Sugar was bought by the Soviets at more than five times the market price. 95% of its citrus crop was exported to other communist countries. The Soviets provided Cuba with 63% of its food imports and 90% of its petrol.⁵

The „Special Period“

After the fall of the Soviet Union in 1989, Cuban economy suffered a strong food and good shor-

tage crisis, the non-diversified agricultural production of the island was not enough to feed the inhabitants. They entered the so-called "Special Period".

From 1994 onwards, the government allowed the farmers to sell their surplus of food directly to the population, as a first step to lift the state's monopoly on food distribution.

Agriculture in the XXI century

The shortage of artificial fertilizers and pesticides lead Cuba to adopt an organic agriculture, where organoponics played a major role in the transition. Cuban's agriculture has slowly recovered and turned into a local economy, enough to supply the inhabitant with food, but not have a strong export yet. The WWF considered the island as one of the most sustainable agriculture economies in the XXI century.⁶

AGRICULTURE

LAND OWNERSHIP AND USE

Colonial Lands

As for most of the Caribbean native tribes, the land ownership was a vague concept for the Taínos. It was not until the Reign of Castilla invaded the island, that they subdivided and distributed it among the newcomers.

State Lands and Usufruct

After the Revolution, the government nationalized farmland.⁷ Nevertheless the co-dependent economic relationship with the USSR would trigger an agricul-

tural crisis after its dissolution. During the so-called “Special Period” that started with the fall of the Berlin wall, Cuban government started slowly to establish policies for land in usufruct.

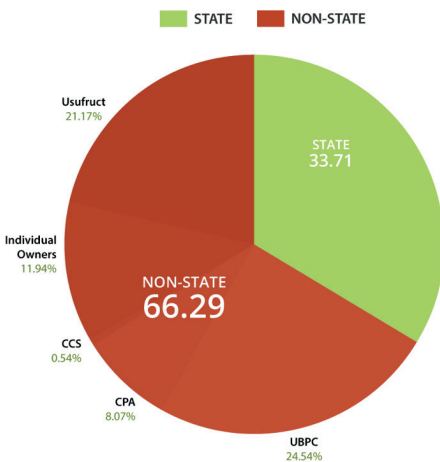
But it wasn’t until 2008 that the law was really approved. It was again modified in 2018, which led to a considerable growth in the agro-peccary production. The production of Vegetables and greens grew 5,3%, corn, rice and fruits grew 6% and beans 8%.⁸

Land use

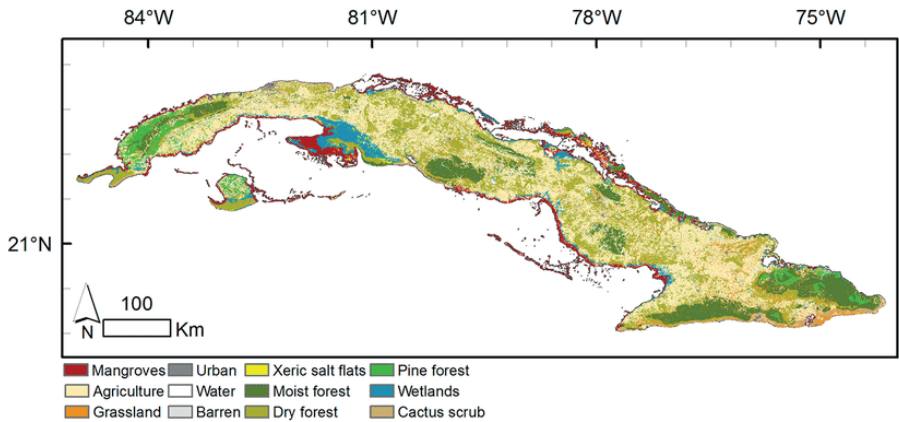
Cuba’s land today is 45% devoted to agricultural, pasturage, and crop production.⁹

Urban Agriculture

The tendency of developing intra-city food production, has led to 30% of La Havana’s unoccupied space to be used for urban agriculture purposes.¹⁰



Manage of Agricultural Land by Sector / ONEI, „Panorama USo de la Tierra“. Cuba 2016. Edición junio 2017.



Cuban Land Use and Conservation / Galford, Gillian & Fernandez (and others), 2008.



Land Utilization map 1977. / Univeristy of Texas Libraries, produced by U.S. Central Intelligence Agency



Tobacco leaves drying in the Viñales valley, Cuba./ © Dusan Zidar/Shutterstock.

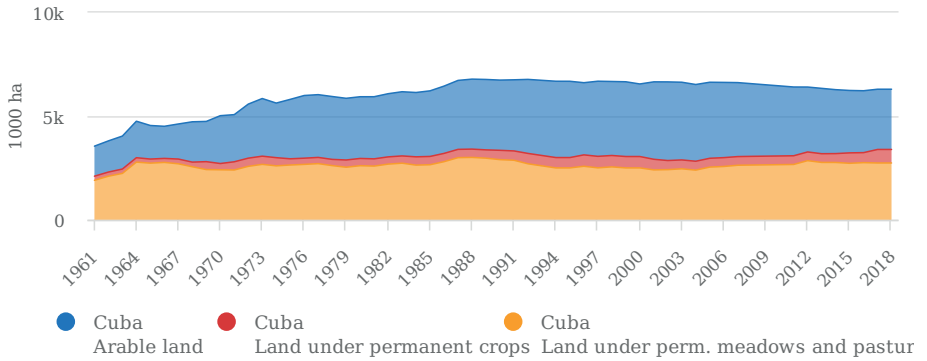
The Rutes of Organic Farming

Cuba of today is a particular example of radical change in the agriculture system throughout its history, from conventional agriculture, intensive in chemicals and pesticides, to a model based on organic materials that is applied now. Although, before 1989 Cuba didn't have any experience in this sector, nowadays it is one of the major and leading countries with a lot of knowledge in this domain. An interes-

ting fact is that organic farming in Cuba started around 1990 as a spontaneous action and initiative of inexperienced groups on farming methods. Those actions formed cooperatives. Afterwards, it was rapidly institutionalized and transformed to one of the state's main priorities as a solution to the extreme food and resource shortages.

Agricultural Area

1961 - 2018



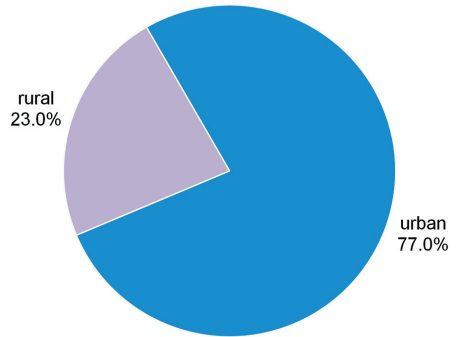
Agricultural Area in Cuba / FAOSTAT, Food and Agriculture Organization of United Nations



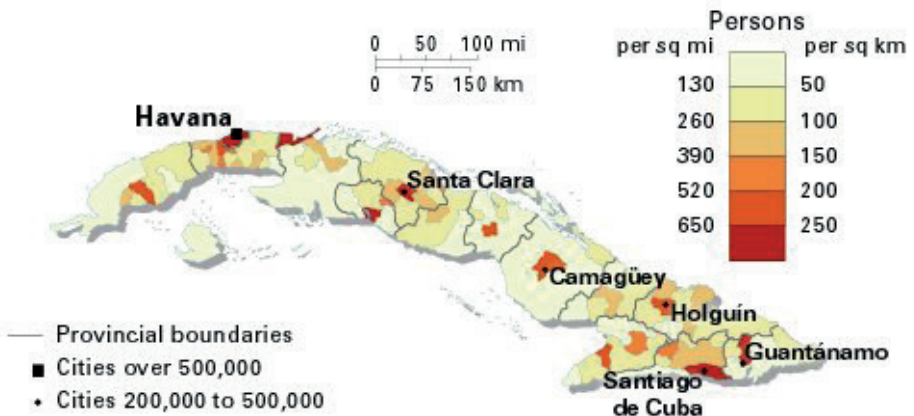
Rotonda de Cojimar, Havana, Cuba. Photograph: Jennifer Cockrall-King

This system spread fast and served as the stepping stone for the development of urban agriculture, an important action through which there were more direct access to diverse food production and distribution. As in the rural areas the cultivations are concentrated to the production of sugarcane, tobacco and liqueurs, destined to be exported, the urban agricultures provide a diverse production of fruits and vegetables for local consumption. To conclude, It is to mention that an important change that happened in Cuba is not only the change of agriculture strategies from conventional to organic but mostly

the change of approach, from rural to urban. They accomplish to take advantage of the vacant plots that exist to the urban space which covers the majority of the Cuban territory and transformed it to an alternative agriculture reality.



Cuba: Urban-rural / Encyclopædia Britannica, Inc.



Population density in Cuba / Encyclopedia Britannica, Inc.

TYPES OF URBAN AGRICULTURE

There are two different types of urban agriculture in Cuba both using organic gardens, the technique of *Organopónicos* and the *Huerto Intensivo* (or intensive gardens). Both of them are organic methods with few differences and especially the first one is a Cuban Invention, inspired and influenced by the method of Hydroponics. Organoponics is the most used in the island. The urban areas where this organic gardens take place are

characterized by high contamination with chemicals and building materials as well as low anthrosol quality, facts that make it an unsuitable space for cultivation. The method of organopónicos gives solution to this problem using elevated container beds filled with organic matter and compost made mostly from the same garden.¹¹

It was crucial to develop a sustainable and organic system due to lack of pesticides and agrochemicals that they were no more having access to. This system is a response to the hy-



Semi-protected cultivation at Organopónico 'Santovenia' / photo taken by Krzysztof Górný

droponics system, as without the chemicals, the hydroponic equipment arrived from USSR was not useful anymore, so they decided to replace them with organic matter. Especially the first organoponics was cement boxes or elevated metal containers filled with sugar compost which existed in surplus. With this invention could take advantage of vacant, large areas that would left empty and uncultivated in other case. ¹²

It is worth mentioning that there

are critics and doubts about the quality of the organic products as the majority of the planting troughs use fragmented asbestos sheets or pipes. However, the quantitative data to entirely support the extension of health implication to both producers and consumers doesn't exist.

Another well established strategy is the so called huerto intensivo or intensive garden. It is a strategy similar to the organoponics, but instead of elevated beds the plants



Cultivation at La Ceiba garden / photo taken by Krzysztof Górny

grow directly in the soil. Those gardens are located more in suburban areas where the quality of soil could be suitable. A strong characteristic both in the organoponics and the intensive gardens is the overlapping of different cultivations, as well as, plantation or harvesting times.¹³

The urban gardeners use household compost or animal

husbandry to enrich the soil and also specific insects for pest control. The production and the farming system are not mechanized and need intensive human labor as the main contribution so the gardens could be functional. All the inputs are local and also the equipment is easily accessible and simple to not be dependant on imports or more complicated processes.¹⁴



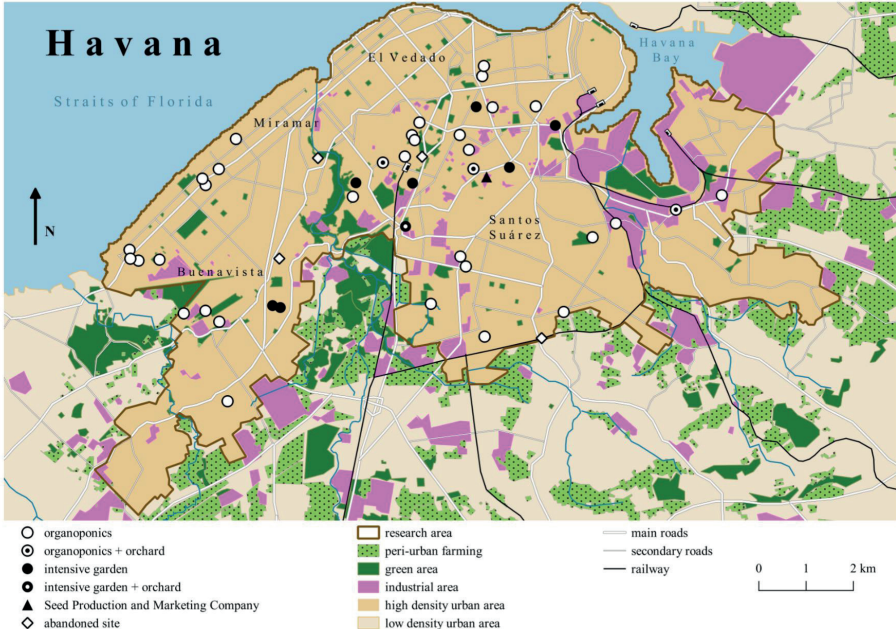
Man and beasts prepare soil for planting at the Alamar organic farm in Havana. Cuban agriculture was highly mechanised during the alliance with the Soviet Union. Photograph: Roger Atwood

DISTRIBUTION OF THE PRODUCTS

Features worth mentioning are how the organization and the distribution procedure of the products are made. According to findings of the article “Urban agriculture in Havana – evidence from empirical research” which focuses on field researches and maps, we conclude that the majority of those urban

gardens are close to principle axis and circulation arteries, municipal green areas, industrial spaces and new residential neighborhoods. Those facts help us realize that the choice of the location of an urban garden has a logic and strategic parameter, where access and low density consist basic factors.

Moreover, about the sites that those farming areas are located, we can see a connection



Location of urban gardens within the research area / elaboration on the basis of fieldwork undertaken in 2018
 © University of Warsaw – Faculty of Geography and Regional Studies

with the architecture history of the Country and especially with the two planning systems that have formed the city, the colonial period and the USSR modernistic era.¹⁵ For example, in the colonial architecture districts the urban farming is more restricted due to the high density.

On the other side the large free green areas that were intentionally left empty in the USSR influenced blocks, now are occupied by urban farming. This influence of the USSR contributed a lot of this low density areas in the cities of Cuba. An occasion to intensify this strategy of urban farming.



An important fact to be stated is that those gardens serve different purposes. In general there are two categories according to the purpose of the organic cultivation. The majority of those urban gardens are operated from cooperatives or individuals with main goal the sale of their products in the local markets or in small stands in the area of the farming plot. Furthermore, there are urban gardens that are controlled completely from the state and their products are destined for *autoconsumo estatal*, meaning that the products of those gardens are supplying governmental institutions, such as rehabilitation projects, schools and university research purposes, or hospitals.¹⁶

Organoponico La Patria, Santa Clara/
Photo: Jennifer Cockrall-King



Organic farmer Miguel Angel Salcines inspects vegetable planting beds at the 25-hectare Alamar farm. Photograph: Roger Atwood

Natural Resources / Production

Choosing an agricultural policy is dependent on main external and internal factors but most importantly, on the availability and access to natural resources of a country. Cuba mainly tries to encourage a self-sustainable production system to overcome the various obstacles that occurred throughout its modern history. Thus, the agriculture sector uses local resources, and the techniques that were obligated to develop are dependent on that. The principle

resource is the rich and fruitful soil, although, this privilege were poorly deployed, due to the monopoly of the sugar cane cultivation. During the last years with the expansion of organic farming, the agriculture in Cuba has started taking advantage of that soil resource and has gained more diversity. This natural resource let the accomplishment up to two crops per year, but the radical climate changes has affected in an unpredictable way the results of the annual production throughout the history.¹⁷

CROPS	2008	2009	2010	2011	2012	2013	Chg.	% Chg.
Viandas ^(a)	2,150,700	2,236,000	2,250,000	2,280,000	2,337,000	2,239,000	88,300	4.1%
Roots and tubers	1,392,500	1,565,600	1,515,000	1,445,000	1,452,000	1,580,500	188,000	13.5%
Potato	196,100	278,600	191,500	165,600	130,933	106,700	-89,400	-45.6%
Boniato	375,000	437,100	384,743	311,900	335,319	396,347	21,347	5.7%
Malanga	240,000	199,400	137,400	132,100	153,782	185,922	-54,078	-22.5%
Plantains	758,200	670,400	735,000	835,000	885,000	658,500	-99,700	-13.1%
Bananas	280,800	245,400	249,200	250,000	195,496	150,336	-130,464	-46.5%
Plantains	477,400	425,000	485,800	585,000	689,504	508,164	30,764	6.4%
Vegetables	2,439,300	2,548,800	2,141,035	2,200,000	2,112,000	2,406,500	-32,800	-1.3%
Tomato	575,900	750,000	517,040	601,000	557,100	678,000	102,100	17.7%
Onions	128,100	131,300	111,737	143,500	118,244	126,876	-1,224	-1.0%
Pepper	56,677	56,672	44,545	55,057	62,202	73,336	9,659	15.2%
Cereals	761,700	868,400	778,863	920,400	1,002,000	1,098,800	337,100	44.3%
Rice	436,000	563,600	454,400	566,400	641,600	672,600	236,600	54.3%
Corn	325,700	304,800	324,463	354,000	360,400	426,200	100,500	30.9%
Legumes	97,200	110,800	80,439	133,000	127,100	129,800	32,600	33.5%
Beans	97,200	110,800	80,439	133,000	127,100	129,800	32,600	33.5%
Tobacco	21,500	25,200	20,500	19,900	19,500	24,000	2,500	11.6%
Citrus Fruits	391,800	418,000	345,000	264,500	203,700	166,900	-224,900	-57.4%
Oranges	200,400	261,000	178,263	122,900	93,837	85,110	-115,290	-57.5%
Grapefruit	166,100	121,500	137,660	112,000	84,741	63,979	-102,121	-61.5%
Lemon	5,400	8,300	6,060	6,600	6,475	5,025	-375	-7.0%
Other Fruits	738,500	748,000	762,045	817,000	964,900	925,000	186,500	25.3%
Mangoes	228,700	269,300	203,595	185,000	286,385	285,526	56,826	24.8%
Guava	126,500	84,900	71,581	85,000	103,191	124,964	-1,536	-1.2%
Papaya	89,400	95,700	135,707	135,000	178,558	197,842	108,442	121.3%
Cocoa	1,100	1,387	1,709	1,510	2,027	1,425	325	29.5%

(a) Includes Roots and Tubers and Plantains.

Table 1. Cuba: Non-sugar agriculture production, selected crops, tons. / Oficina Nacional de Estadísticas e Información(2014) ¹⁹

Livestock subprogrammes	Cultivation subprogrammes	Support subprogrammes
1. Beekeeping	8. Fresh vegetables and herbs	20. Control, use and conservation of land
2. Poultry farming	9. Medicinal plants and dried herbs	21. Organic fertilizers
3. Rabbit farming	10. Ornamental plants and flowers	22. Seeds
4. Sheep and goat farming	11. Fruit	23. Irrigation and drainage
5. Pig farming	12. Non-specialized rice	24. Animal feed
6. Aquaculture	13. Forestry, coffee and cocoa	25. Marketing
7. Large livestock farming	14. Non-specialized banana	26. Small-scale agro-industry
	15. Tropical roots and tubers	27. Training
	16. Oilseed crops	28. Agroecological integration
	17. Beans	
	18. Corn and sorghum	
	19. Semi-protected crops	

Table 2. The National Urban Agriculture Programme sub-programmes/ Institutional level of policy development: Provincial ²⁰

The main products that the Cuban agriculture produces are sugar cane, tobacco and liqueurs while mostly in the urban areas are produced also fruits and vegetables. The sugar cane production is deeply connected with the tradition of the Cuban agriculture and economy.

Furthermore, Apart from the production of high quality derivatives, this sugar organic cultivation has many beneficial environmental aspect such as the generation of non-polluting renewable energy. This impact is really positive for the region as this industry doesn't affect the rate of the CO₂ emission in a harmful way, on the contrary it's environmental friendly.¹⁸ Other resource for fuel reserve and energy is Peat, concentrated mostly in the Zapata peninsula, and Nickel ore as Cuba is among the top countries in nickel production worldwide. Nowadays, sugar still remains among the basic productions and, with the tobacco, the main export resources. According to the Table 1 the catego-

ries of non-sugar crops that show a growth tendency are viandas (4.1%), cereals (44.3%) (especially rice which is the basic nutrition of the traditional diet), legumes (33.5%), tobacco (11.6%), other fruits (25.3%) and cocoa (29.5%).

Moreover, since 1998, the Ministry of Agriculture has created the National Urban Agriculture Group, which tries to develop plans about the enhancement of the agricultural production. As it is shown also in the table 2 *The National Urban Agriculture Programme currently includes 28 sub-programmes covering various aspects of production, marketing and value addition, and the conservation of natural resources organized in livestock, cultivation and support sub-programmes.*

Imports/Exports

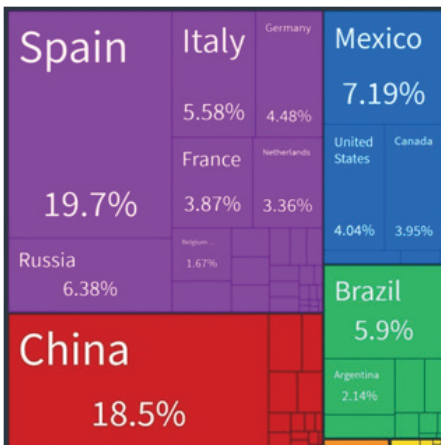
Despite the investment of the Cuban state to the agriculture sector and the big effort to achieve sustainability and efficiency, the production cannot reach the appropriated levels, thus shortages are being noticed. Still Cuba imports and exports basic products and seems that maintain trading relationships and collaborations mainly with Spain, China and Mexico.

The most recent exports are led by Rolled Tobacco (\$277M), Raw Sugar (\$211M), Nickel Mattes

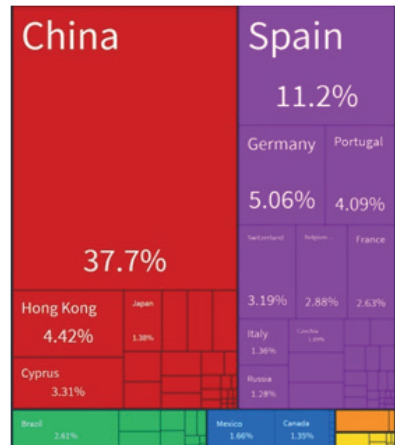
(\$173M), Hard Liquor (\$116M), and Crustaceans (\$81.8M). The most common destination for the exports of Cuba are China (\$446M), Spain (\$132M), Germany (\$59.8M), Hong Kong (\$52.3M), and Portugal (\$48.3M).

The most recent imports of Cuba are led by Poultry Meat (\$254M), Wheat (\$160M), Corn (\$156M), Concentrated Milk (\$117M) and Vehicle Parts (\$99M). The most common import partners for Cuba are Spain (\$1.14B), China (\$1.08B), Mexico (\$418M), Russia (\$370M), and Brazil (\$343M).

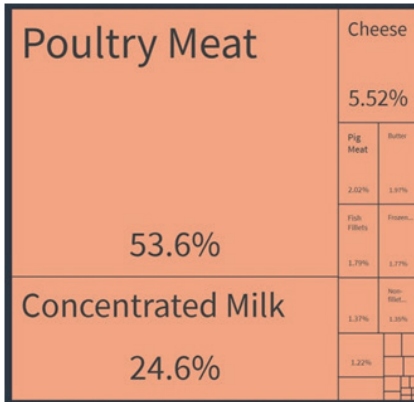
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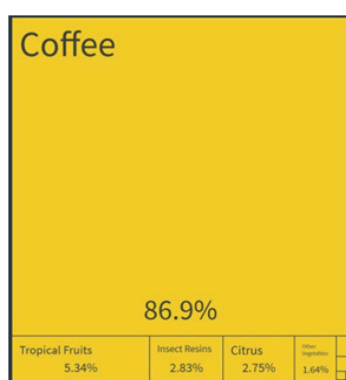
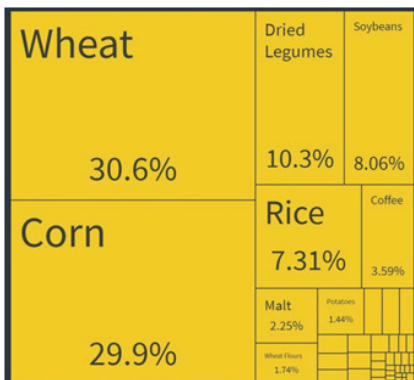
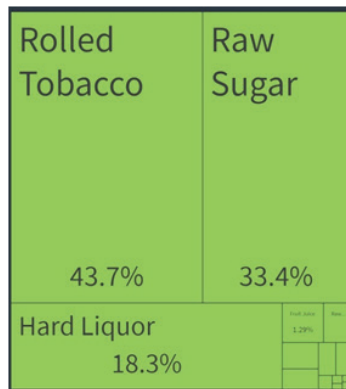
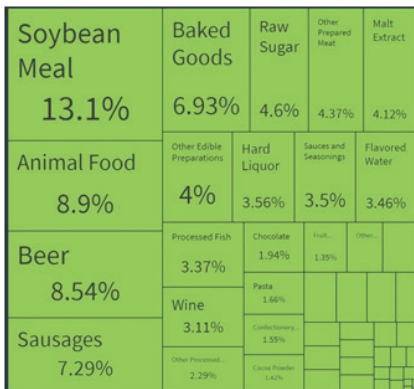
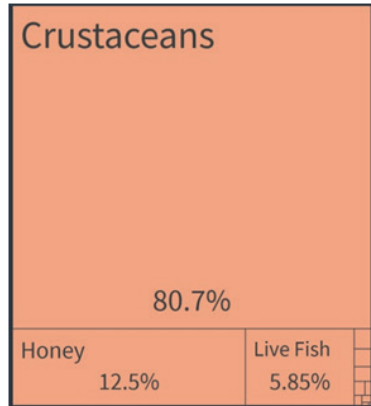
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