



Between
HURRICANES and
EARTHQUAKES

2017-2020

Rico Banana Inc.: A Study Case

PUERTO RICO SCIENCE, TECHNOLOGY AND RESEARCH TRUST,
G-2 BUILDING A RESILIENT BUSINESS

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Introduction

This research project examines one of the more comprehensive topics that I have been studying for many years regarding the agricultural politics in and for Puerto Rico, as applied to specific periods of struggle such as the destructive conditions resulting after natural disasters occur. Some debates about the development of agriculture in Puerto Rico during the XX- XXI centuries point out our limitations of increasing agricultural production. A small island unable to produce enough to provide the population's needs, and our inability to compete with other large nations or states, are just a few arguments, among many others that have been presented. But we also have arguments that can be made in favor of increasing agricultural production in Puerto Rico. At the present time, over eighty percent (80%) of food consumed in Puerto Rico comes from imports resulting us to be heavily dependent on those products to feed the population. My purpose is to demonstrate our capability to produce with many different benefits- economic development, employment and accessibility-- some of our essential food needs. The Department of Agriculture Statistics shows that bananas are an important product in our basic basket of goods. Apparently, and contrary to many other products like coffee, the island is capable of becoming a self-sufficient producer of agricultural goods to serve this need. Some leaders in the industry favor cutting back on imports and producing more crops on the island allowing Puerto Rico the ability to cut back on expensive import costs and enjoy a fresher and higher quality of food.

Natural disasters such as Hurricane Maria (2017) and more recently ongoing Earthquakes that have been occurring since January 2020 and followed by the outbreak of Covid- 19, pointed out our vulnerability. It also revealed the need for the market to provide food for the population and also provide those immediate needs based on mitigation and recovery plans to be in place. After hurricane Maria struck, it was an impossible challenge to distribute food to the island. Based on these facts, I have chosen to examine the banana industry taking a Rico Banana, Inc. located in Guayanilla, as a case of resilience.

We intend to show how important the banana industry is for nutrition, the local economy and in the recovery process of this familiar enterprise located in the municipal of Guayanilla in

southern Puerto Rico, which is dedicated to the cultivation, the maturing process and the distribution of ripe bananas. It was chosen to be studied because it is an outstanding business in an oppressed economic zone. Besides, it demonstrates the course it took to transform from an artisan agriculture to an industrial one. Likewise, because before adverse setbacks occurred, its founder had quickly managed to implement effective recovery plans after being impacted by disasters caused by natural and economic factors. This enterprise was damaged by hurricane María in 2017 and in the middle of the recovery process it was also affected by earthquakes and the pandemic of 2020. The purpose of this investigation is to present a model of strong management in a business that provides food for the country, direct employment for 60 persons and has generated economic activity in the southern zone of Puerto Rico since 2012. In the banana market, Rico Banana is one of the main suppliers of ripe bananas to 13 of the stores of the Supermarkets Super Max and the Econo-Facundo chains, and Plaza Loíza in San Juan, including other Municipals in the north and south of the Island. Their product is also accessible to WIC members and students from the Department of Public Education.

Some important findings regarding the banana industry as a global business

During the process of this investigation many questions have arisen as well as regarding the banana and corn meal industries in Puerto Rico and the world, which we consider necessary to better understand the importance of these industries. We discovered that an extensive bibliography exists specializing in the banana industry and its reaching a global level, but there is very little about what Puerto Rico has produced as an economic, social and agricultural theme. Likewise, and in spite of a limited time schedule to present this project, I have considered it necessary to elaborate a narrative that puts us in context regarding this activity so linked to our customs and begin with pointing out the following data:

-Historically the banana industry existed together with the sugar cane and coffee plantations, as one of the most active in the Caribbean, Central America and the United States since 19th century.

-Its history is also tied to transnational businesses, the exploitation of natural resources and human labor.

-At the present time it generates an income of multimillions because the banana as a fruit is one of the agricultural products of great demand in the world market.

-Ecuador has been the world's first supplier of the product since 1954.¹

- According to Agronomist Carlos Flores, the Secretary of Agriculture, 8,000 producers of plantains and some 2,500 producers of banana existed in Puerto Rico in 2019.²

-The Association of Banana Producers exists in Puerto Rico, which was founded in 2017.

-Twelve banana plantations are worked on a grand scale and deliver some 25,000 boxes of bananas weekly to consumers.³

- In Puerto Rico the yellow banana is called a fruit and the green ones a vegetable, but in other parts of the world such as Spain, the yellow fruit is called plantain and our green plantain is called banano. In Latin America the yellow fruit is known as banano. The term guineo became popular in Puerto Rico and the Hispanic Caribbean (Dominican Republic) because the original fruit was imported from West Africa, which was known as Guineo before.

- The banana is a food rich in vitamins, fiber, and minerals such as potassium, and magnesium, important nutrients that fortify the immune system.

-An extensive market exists of edible products derived from this fruit, industrial and artesian.

-Experts point to climatic crisis as a detonator for the deterioration of this industry thus predicting its disappearance by 2050.⁴

¹ According to Carlos Larra Maldonado, "Auge y crisis de la producción bananera (1948-1976)", *El banano en el Ecuador*, Ecuador: Flacso, 1987. 37-66. <https://biblio.flacsoandes.edu.ec/catalog/resGet.php?resId=7924>

² Refer to <https://www.agriculturaenmarchatv.com/2019/08/22/puerto-rico-proh%C3%ADbe-la-importaci3n-de>

³ According to José Fabre Laboy in an interview, who is the owner of *Bananera Fabre* in Sabana Grande and the President of Puerto Rico Banana Association, June 17, 2020.

Agriculture in Puerto Rico and the rise of the banana industry

Seen throughout our landscapes, such as the shade of the coffee plantations, family harvests or harvesting on the plantations, the plantains and bananas are, without a doubt as much ours as the sea, the palms, the mountains and rivers, coffee, coconuts, and flamboyant trees. They are all present in our museums in the paintings of Francisco Oller, in *El Velorio (The Wake)* and in his taverns, in the iconic paintings by Ramón Frade *El pan nuestro (Our daily bread)*, and in the works of contemporary artists, such as Miguel Pou, Nick Quijano, Arnaldo Roche, Miguel Luciano and Victor Vázquez as an example of our Puerto Rican identity.

Since the beginning of the XX century this landscape of banana plantations and the iconic painting of the branch of green or yellow plantains against the shoulder of a child or a peasant served as bait to attract tourists to the recent inauguration of the hotel industry. For the North American tourist our bananas fed the mystique and image of the tropics associated with poverty⁵ but also to the United Fruit and Company (UFCO), the main importer of bananas to the United States with extensive plantations in Central and the Caribbean since the XIX century⁶. However, industrial agriculture in Puerto Rico during the first half of the XX century didn't pertain to banana plantations. It came from a single-crop agriculture mainly for export, and propelled by absentee capitalists with the protection of the federal government. It centered on the exploitation of sugar cane, tobacco, and coffee until the 1930's when grapefruits and pineapples were included, but sugar cane was the main crop until the end of the 1960's. The plantain, the banana and the rest of the vegetables were crops for subsistence although in some towns they provided a moderate regional activity to sell those fruits.⁷

That system, together with the damage caused by bellicose conflicts and frequent cyclones—San Ciriaco (1899), San Felipe (1928), San Ciprián (1932) and Santa Clara (1956)—revealed a

⁴ See <https://www.eluniversal.com.mx/ciencia-y-salud/la-industria-bananera-se-vera-afectada-por-crisis>

⁵ Rafael Cabrera Collazo (1988), *Los peninsulares y la tradición hacia el siglo XX en la zona central no-cafetalera de Puerto Rico: el caso de Corozal, 1890-1905*, Tesis MA, Escuela Graduada de Historia, Universidad de Puerto Rico, recinto de Río Piedras.

⁶ Truman R. Clark (1975), *Puerto Rico and the United States, 1917-1933*, University of Pittsburgh Press.

⁷ Cabrera Collazo, op.cit.

serious alimentary crisis on the Island⁸. Likewise, in the United States, after the 1929 depression, the food crisis and agricultural development was the obligatory subject to the general public and civil engineering with plans to transform labor, property and the use of the land.⁹ The model tested to respond to the crisis in Puerto Rico was the failed Chardón Plan, which was unable to establish a prosperous and diverse agriculture that would provide Jobs, economic development and social change as they had thought. Paradoxically, the industrial and manufacturing era after the 1950's, which is attributed to be the end of agriculture, represented an opportunity, without precedents, for the development of the plantain and banana market in the Island.

After WWII, eating habits of consumers towards food dramatically changed due to agricultural products imported from North American farms. In the small coffee shops, the rural markets and the ambulatory peddlers selling provisions, North Western apples, onions, Klim and Denia milk, Hunt's tomato sauce, Campbell's soups, canned meat, sweet drinks (Old Colony, Pepsi, Coca Cola), and many other imported products distributed throughout the Island from the mountain towns of Castañer, Lares, Adjuntas, Jayuya and Utuado to the towns along the coast. These products were sold at street locations, such as the recently inaugurated Grand Union supermarkets in San Juan. Ruth Gruber, a reporter from the New York Herald Tribune, pointed out in 1958 that, "Thrifty Puerto Rican housewives were pushing carts of frozen foods and rice and beans through the bright fluorescent-lighted supermarkets."¹⁰ The supermarkets were the main distributors of agricultural and industrial products from the United States,¹¹ but also of some products produced locally, such as vegetables and bananas. In this sense, the growth of the city represented an opportunity to develop a local industry Of the banana and plantain,

⁸ For further insight on this topic see Rubén Nazario Velasco (2014) in *El paisaje y el poder: la tierra en el tiempo de Luis Muñoz Marín*, San Juan, Ediciones Callejón; and in Libia M. González López et al, (2011) *Agricultura y sostenibilidad en el mundo, 1900-1911*, Actas sobre el Foro de Agricultura, UPR 2011, San Juan, NEH, Moralon.

⁹ Sarah T. Phillips (2007). *This Land, This Nation, Conservation, Rural America and the New Deal*, Cambridge University Press.

¹⁰ Ruth Gruber (1960), *Puerto Rico, Island of Promise*, Washington, p.3.

¹¹ See Cruz Miguel Ortíz Cuadra's essay "El supermercado muñocista: jugada clave", in *80 grados*, 30 de marzo 2012, <https://www.80grados.net/el-supermercado-munocista/> for a study on Lansing P. Shield, owner of Grand Union, and the report of Food Advisory Commission to Governor Luis Muñoz Marín.

which were also sold in Market Plazas. The following factors also promoted the development and growth of industry:

- The abandonment of rural farms
- The exodus of the population to urban zones
- The consumers taste for the local banana and plantain
- The strong cultural link to the product.
- The development of the restaurant industry
- The development of the hotel industry
- Greater purchasing power of the emerging middle class

Since the end of the 1950's, the cultivation of flour grain powder made from crushed seeds} was attractive to local economist's projections due to its economic potential and for being an essential food for the population during a crucial time for agriculture. In a report to the Governor, the expert on agrarian economy, Sol Luis Descartes highlighted a 13 percent growth of the total value of the farm production in 1964-65 from cultivating vegetables and grains, although he realized that it was necessary to improve distribution and the farmer's market.¹² Twenty years after the prominent Consultant to the local and federal government regarding policies towards the agrarian development, Agro. José Vicente Chandler believed in the potential growth of this sector and the urgent need to give them credit for its development in technology and applied mechanics.¹³ Chandler, the main author of the agricultural aspects in the Kreps report, a conclusive study authorized by the Department of Federal Commerce on the socio-economic problem in Puerto Rico, that gave energy in promoting an industrial development of the local agriculture. This polemic report pointed out the abandoned state of diverse local financial sectors, the excessive dependence in Puerto Rico of the bureaucracy and capitalists of the United States and, although no recommendations were offered, it provoked a series of projects at a local level to promote economic growth. Among the suggestions that

¹² Sol Luis Descartes (1969), "La agricultura: la lucha por su preservación", *Estudio sobre Historia de la Economía Puertorriqueña Contemporánea*, Universidad de Puerto Rico, Centro de Investigaciones Sociales, Facultad de Ciencias Sociales.

¹³ José Vicente Chandler (1985). *Una nueva agricultura para Puerto Rico, proyecciones para el año 2000*.

were decided, Chandler pointed to a highly technified agricultural industry and highlighted the enormous possibilities of developing banana plantations. To do this, they proposed:

- investing in new cultivation techniques.
- the creation of commercial farms.
- to provide the promoters with the necessary credit.
- to put in motion an efficient distribution and marketing system for the local consumer and for exportation.

In his words, Puerto Rico had all the conditions to promote “a modern banana industry to supply the local market and to develop a modern exportation plan during the year.”¹⁴ Until this moment, we haven’t been able to measure the scope of their recommendations, but it is a real fact that the plantain and banana industry, with its ups and downs, had acquired popularity after the 1970’s.

This potential for development was mainly observed by those producers who also invested in the industrial phase because at the level of a farm, it continued being a very vulnerable and onerous activity for the farmers. In fact, besides the marketing opportunities industrialization brought, a demand for the product interdependent dynamics to the interior of the agricultural sector that with time machinery was used to develop the industry. A chapter of this evolution that deserves to be studied with depth is precisely the relations between the producers and the middle-men and how, at times of financial crises, the farmers and the banana plantations in the mountains¹⁵ confronted the impact from the historic closures of several supermarket chains.

The industry maintains an interrupted chain of production due to many intervening factors. There are the farmers who are Sowers, and don’t have to ripen the bananas or go to the markets as they work mainly in the mountains. Then there are the Planters, the farmers who buy the bananas, let them ripen and sell them to the industrial plantations that manage the

¹⁴ Ibid., p.168b.

¹⁵ The production of bananas for the market and the origin of the banana plantations in Puerto Rico were centered in Lares before extending to the coast.

complete operation of sowing, ripening, packaging, and distribution. There are around 12 industrial plantations located principally on the coast between Santa Isabel and Yauco.

In all of this, there is a knowledge and tradition of planting that exists and comes from the hands of knowledgeable agronomist specialists who study the genetics and the quality of the bananas they produce. The banana that is widely cultivated on the Island originates from Southeast Asia' family Of the Musáceas, known as Cavendish where different varieties come from, such as the Grand Dwarf, Valery, Johnson, Montecristo and Mitchel. It is a crop that that can be cultivated throughout the year and is most productive in the summer due to longer days of sun and heat. Their greatest enemies on the plantations are plagues, such as Sigatoka Negra and Yellow, and Fusarium –also known as Mal de Panama--, which is a very damaging mutant fungus causing substantial losses on the plantations, other diseases caused by bacteria and viruses and attacks by some insects. Therefore, it is a cultivation supervised and studied by experts who are in charge of guiding farmers and to help them combat these diseases and prevent the entrance and propagation of diseases and plagues on the Island reported on plantations in countries that export.¹⁶ For this function it is essential the work of the expert agronomists assigned to the Agricultural Experimental Stations and the Agricultural Extension of the University of Puerto Rico.

According to the Puerto Rico Department of Agriculture Statistics for 2015-2016, the production of bananas was second in gross Income—after the plantain [\$ 76,231] of major importance within the category of flour in the Island with an estimate this year of 314,406 thousands of fruit for a gross income of \$28,341.¹⁷

¹⁶ See Manuel Díaz in *Agrotemas*, <https://agrotemasonline.blogspot.com/2009/08/aprende-sobre-el-cultivo-de-guineos-en.html> and Mildred Cortes, https://www.researchgate.net/publication/308901704_Situacion_y_perspectivas_del_sector_de_platanos_y_guineos_y_raices_y_tuberculos_en_Puerto_Rico_Puerto_Rico/link/57f6481308ae https://www.researchgate.net/profile/Mildred_Cortes/publication/308906557_IMPORTANCIA_DE_LA_PREVENCIÓN_DE_FUSARIUM_RAZA_4_TROPICAL_EN_PUERTO_RICO/links/57f700e208a-

¹⁷ Departamento de Agricultura, 2019, Departamento de estadísticas agrícolas. Apéndice A, p.2.

Previous numbers indicate that the plantain and banana production contributed important local numbers to the economy. According to a study published in 2009 by a group of investigators from the University of Puerto Rico, the value of plantain production in Puerto Rico in 2008 rose to \$78.5 million, and that of bananas to \$13.2 million. The same study showed that in Puerto Rico the annual consumption per capita of plantain rose to 23.6 kg, of the green banana it rose to 8.6, of ripe bananas to 5.2 kg.¹⁸

Regarding this theme of consumption. It is necessary to point out that not all the bananas on the table come from the large industrialized farms and is a product that is marketed informally, it is impossible to establish a real number about production and consumption. Statistics about production are approximate, and come from the Department of Agriculture and the producers. According to these statistics, everything that is produced and consumed locally and is one of those farm products that according to the experts, “we are self-sufficient”. Products are only imported during periods of scarcity to supplement the demand.

Rico Banana Inc: A Resilient Puerto Rican Family Enterprise.

Rico Banana Inc. is one of the principal Banana Plantations in Puerto Rico specialized in the cultivation, harvest, packaging and distribution of ripe bananas on the Island. It was founded by a farmer and businessman Fulgencio Rodríguez, who had been connected to the cultivation and business of ripe bananas for more than 35 years.

The oldest in a family of six children, a native of the Mameyes sector in the town of Jayuya, he started a ripe banana business at the age of 21 and with the tenacity he had to know he had to help his family, he abandoned his university studies and his aspiration to finish a career in law and dedicate himself entirely to agriculture when his father became ill.

¹⁸ Mildred Cortés², Manuel Díaz³, Leticia Gayo⁴, Ada Alvarado⁵, Evelyn Rosa-Márquez⁶ y Wanda Almodóvar⁷, DISTRIBUCIÓN DE LA SIGATOKA NEGRA (MYCOSPHERELLA FIJENSIS) EN PUERTO RICO', J. Agríc. Univ. RR. 93(3-4):269-272 (2009).
<https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&ved=2ahUKEwjV9Nzw7vTpAhU0TTABHR3GcTQ4FBAWMAJ6BAGCEAE&url=http%3A%2F%2Frevistas.upr.edu%2Findex.php%2Fjaupr%2Farticle%2FviewFile%2F5474%2F4169&usg=AOvVaw2fk8i93nRg-Mqb5lVuEcAy>

He was born and grew up on a farm where his family cultivated coffee and bananas of the Montecristo variety. As a majority of the farmers and producers of bananas in the mountains did, he participated in the business of this product from its beginning stages, when the farmers sold their produce to middlemen who paid them very little. Aware that the middlemen kept the sales profits, he began by buying a “1968 Dodge Power station wagon”, in order to sell and distribute the product directly to the Plaza Market in Lares. From there, the “One Man Company” – as it’s described – began creating a route, buying from other mountain farmers and offering the product to supermarkets.

“The supermarkets demand quality, a juicy and attractive banana”, Fulgencio says.

With this in mind, he managed to acquire quality in six of the Amigo supermarkets. He discovered the potential of the ripe banana business the taste and demand of the Puerto Rican consumer particularly from the urban zones.

In the second phase of his empresarial development, Rodríguez invested in the ripening process of the product, by buying three rustic chambers for banana maturation from a merchant in Bayamón (coolers), and in that municipality he developed the maturation, packaging and distribution operation. He bought ripe bananas from Bananera Torres in Lares and other farmers and distributed them in Pueblo Supermarkets. His business strategy in this stage was to have an inventory that would permit him make daily deliveries of fresh bananas to the supermarkets. From his own experience he learned to distinguish consumers’ tastes and earn prestige and credibility in the markets.

In 1986 Rodríguez acquired Puerto Rican Agro Industries, a farm in Arecibo of 110 acres. During this stage, he had the assistance of a Honduran agronomist who advised him to cultivate a small banana, a variety of a popular product cultivated in Costa Rica and Central America. In this stage he had to confront great setbacks due to the destruction caused by Hurricane Hugo in 1989 and the delay of insurance payments and agricultural credit. These factors delayed the agricultural progress of his farm because, among other things, it put off reconditioning the earth, buying seeds and planting them, fertilization, paying the employees and other obligations. This panorama became catastrophic with the irreparable damage the farm suffered

from using Dupont 50 DF fungicide that killed the plantation and caused millions of dollars in damage.

After all that, Rodríguez managed to open his business again and incorporated as Rico Banana, Inc. in 2007 in order to cultivate, mature and sell ripe bananas and other fruits. In 2008, he made a major investment in technology to speed up the production process in order to supply the demand for the product on a daily basis. In 2012, the corporation bought the land of the old Central Rufina in Guayanilla from the Land Authority.

The southern coast of the Island, where this property is located, is very rich for the cultivation of bananas. It's known for its level ground which is benefitted by mountain erosions that brings with it organic materials and because of its soil which is deep and sandy, and responds well to fertilization and irrigation. On the other hand, the location is beneficial for transporting the product to the factory and distribution to stores.

All the phases involved in the banana business were planned around efficiency and production. The logistics of production entails daily work that is done simultaneously. Two agronomists on the farm supervise cultivation. They are in charge of the sowing, fertilization, and irrigation, and also observe plagues and the application of herbicides, among other things. In the field, at the same time, other personnel cut down bunches of green bananas from the trees to transport them daily by an air-borne cable pulled by a tractor. This cable can deliver up to 150 bunches to the factory at one time. And at the factory, a group of men and women are in charge of separating them, and do the washing process in several large tanks or basins with 1500 to 2000 gallons of water from one of the wells on the farm is done. From here, the fruit is transferred to refrigerators or maturation chambers which in four days, optimum ripening is achieved after strict temperature control and the hormone Ethylene applied. Every chamber stores around 560 boxes. The enterprise counts on a fleet of 7 trucks for distribution. In the ripening phase, Rico Banana also offers this service to other banana plantations, which is an additional product of his business.

Before Hurricane María, this enterprise maintained a credit with Puerto Rico Farm Credit and had invested in a new technology imported from Italy, unique in Puerto Rico and the Caribbean

for ripening bananas. This technology that can be remote controlled, it allows temperature control in the refrigerators that helps to keep the fruit fresh, juicy and not dry out. The farm was planted to capacity with a factory production of 3,500 boxes weekly. According to Rodríguez Hernández, Maria destroyed the farm: “With Hugo and Georges, nothing was lost compared to what we suffered from María.” The Hurricane had 165 an hour winds, gusts of 210 miles per hour, moving 10 miles per hour generated on the farms and country a destruction without precedents.

The Effects of Hurricane María

The Hurricane caused thousands of deaths in Puerto Rico, seriously impacted the economy of the country, which was already fragile due to being in debt to the Government, immigration, and the recent declaration of bankruptcy. The devastation in Puerto Rico, according to the same report from the Planning Board was worse than what they managed in New Orleans after Katrina. According to the Secretary of Agriculture’s report, the agriculture sector alone lost an estimate of 182.5 million in damages.¹⁹

Regarding the losses of the agricultural sector, investigators from the *Food Systems Program* from the University of Vermont concluded that 80 per cent of agriculture value was destroyed by María, and that the majority of the farmers reported significant losses on their farms.²⁰ According to the same report, 42.5 percent reported having lost everything, 45.5 percent reported significant damages and 10.5 percent reported moderate damages. The majority of the damages, according to this report, were related to crops [77.6 percent], the infrastructure [69.4 percent], and to animals [27.1 percent]. And that 89.8 percent of the people reported that

¹⁹ Report:

https://cb.pr/wpcontent/uploads/2018/04/0418_Informe_Económico_al_Gobernador_y_Apéndice_Estadístico_2017.pdf

²⁰ Luis Rodríguez Cruz y Niles, Meredith (2018). *El impacto del huracán María en el sector agrícola puertorriqueño: Experiencias, retos y percepciones.*

https://www.researchgate.net/publication/328974807_El_impacto_del_huracan_Maria_en_el_sector

they had at least one obstacle affecting their recovery. The obstacles pointed out were related to the dynamics of the farm [43.7 percent], for example: damage to the infrastructure, the lack of workers, etc.; other obstacles related to the government [31.3 percent]: lack of aid and assistance, slowness in the processes, etc.; and others had to do with the lack of electricity, water, and communication.²¹

The banana industry so connected to food was one of the most damaged enterprises. The winds demolished the plants, the land was flooded, and the infrastructure suffered major damage. As a measure to alleviate the scarcity of food and the situation of the producers, the Secretary of the Department of Agriculture authorized an agreement with Latin-American countries to help supply the demand of plantains and bananas to Puerto Rico without putting at risk the local plantations by introducing possible new diseases until the end of 2018. According to what came out in the press, banana imports could enter Puerto Rico through the Association of Producers of Bananos. They permitted 28 freight cars to enter weekly loaded with 1,080 boxes of fruit that they thought would be enough to fulfill the demand on the Island until local production could begin. For many banana farmers, this agreement didn't meet their expectations due to the severity of import controls and federal inspections of the freight cars, the product was lost and could not be sold. This situation resulted in waste and loss of clients.

Hurricane María destroyed 200,000 plants on the Rico Banano plantation in Guayanilla. Those 200,000 plants represented an inventory of 77,000 bunches of fruit for a total of \$1,300,000 in sales. The enterprise practically lost all of its harvest, and besides, the soil needed reconditioning to be able to replant again. Agricultural insurance paid only \$200,000 that barely covered part of the cost of the first four freight cars of fruit that they had to import from Costa Rica in order to supply a demand for the product.

“We began to open the farm in September. From then on until November we focused on banana imports because we wanted to maintain the business open as the insurance took a long time to arrive. From September to February we responded to our clients with imported

²¹ Ibid.

products, but it wasn't sufficient. Decidedly, we couldn't ignore this fact. We had to go back to the farm".²²

Rico Banana Reconstruction plan: "A new dawn, a new day, a new challenge"

Rico Banana slogan **"A new dawn, a new day, a new challenge"** reveals the motivation, confidence and optimism that has been leading the enterprise reconstruction plan.

Reconstruction of the farm consisted of a strategic plan designed by Fulgencio himself with the help of his sons, Fulgencio, Jr. and Wigberto, together with Agronomists, Edgar Pérez, Angel Gerena and Freddy Camacho. They took into consideration in this plan to transform the farm, which they had already contemplated before the Hurricane but after it passed, we were obligated to go ahead with the plans. Among them: the renovation of the irrigation system, the installation of solar plates to lower the cost of electricity for the refrigerators, renovation of the plants, by cleaning and improving the ways to implement better fertilization practices and for recycling plastic wrapping.

Originally, they thought about cleaning and recuperating the pre-existing underground stem base, but at the insistence of Fulgencio, father, that idea was eliminated due to his own experience. He estimated that the stem base, after six months, would produce an ostentatious harvest and there would be no other produce for the rest of the year. To avoid losses and maintain farm production, he had the idea of planting in regular intervals that began with the complete renovation of the farm.

One of the first tasks to undertake was the irrigation system. The farm relied on an irrigation sprinkling arrangement using an estimated 750,000 gallons of water daily that was completely transformed into a system of irrigation by drops. The second step was to eliminate an estimated population of 720 plants on each acre, which have been producing for 18 years and

²² Interview with Fulgencio Rodríguez Hernández, May 15, 2020, Cayey, Puerto Rico. After the Hurricane, the Department of Agriculture managed and authorized the import of plantains from Ecuador waiting to comply with the required standards in order to enter the Island.

confronted the presence of plagues and diseases such as Sigatoka. Also, it was absolutely necessary to repair the roads and clean the areas with an undergrowth of weeds.

The plan considered eliminating the old plants and sowing seeds gradually on lots of 5 acres in order to have constant production and when the last lot finished its harvest, already the first seeded lot would begin to produce. They utilized the same variety of bananas used previously called Grand Nain (Grand Dwarf). They bought reproduction plants in vitro from meristem: Clean plants, free of plagues, free of pathogens with renovated genetics, in a selection brought from Costa Rica and developed for the Fabre Banana Plantation in Sábana Grande.

They chose essential personnel for the operation. For each phase, there were responsible agronomists in charge: Edgar Pérez was in charge of preparing the subsolar land (plowing the land with a harrow disc two times), and make banks for installing an irrigation system by drops; Ángel Gerena was in charge of planting and marking where the plants go, digging the holes to plant them and aligning the mango trees; and Freddy Camacho was in charge of the fertilization treatment post-planting.

In terms of human resources, various groups were organized, some to pick up debris left by the river, and some to remove the plastic wrapping from the branches. Two other groups will cut the underground base stems of the banana plant, chose the best samples and another group will repair the irrigation system.²³

The complete farm was fertilized with granular manure (6-15-22) in 3 cycles and the plan of the new planting resulted in the farm producing as foreseen in January of 2019.

From what was conserved from the old plants, by the 19th week of 2018, they were able to pack 19.256 boxes with local produce.

²³ The strategic plan information for the recuperation of *Rico Banana Inc* for this research was provided by agronomist Edgar Pérez González.

The investment of this reconstruction rose to 1 million 300 thousand dollars, which was possible by means of private recourses of the enterprise and a business agreement with Puerto Rico Farm Credit in Puerto Rico. Agriculture Insurance only gave \$200,000 dollars.

Added to this work plan is gasoline, additional rental of machinery, and payment for other work, such as installation of cables via welding, etc.

Fulgencio's youngest son, Wilberto, has this to say about the plan:

The action and juggling of economics that we did was an equation based on risk and value, as we bet everything in the moment that the farm no longer was the means to generate an income. Everything was calculated making moves that provoked days of sleepless nights mixed with depression and anxiety.

To sum up, Faith and the will of God guided us with fortitude and security that in the end we would rise again.

This family enterprise has resisted Hurricane Maria and the earthquakes in January, 2020 and also the changes in market status and the new sanitary regulations that continue to impose challenges to agriculture.

In each one of these occasions the business renovated its strategies to maintain the total chain of production functioning. Throughout, there has always been innovation, investment in technology, access to credit, but above all, values, and the motivation generated for work one has done all his life with a work ethic based on responsibility and credibility within the industry together with the mutual family relationships and the tight bonds of solidarity and loyalty between the employees and the owner of the business.

After recuperating from María, Fulgencio, father, has delegated the management of the enterprise to his sons, Fulgencio Jr. and Wigberto Rodríguez, who represent the second generation of the family. Both have been busy maintaining the production and management of Rico Banana, Inc. during both the earthquakes and the Pandemic.

Fortunately, the earthquakes that affected the region of Guayanilla did not cause much damage to the plantation, although they did affect work on the farm and distribution during several months. In part, because the quakes provoked insecurity and damaged the homes of some employees. During the first months of earthquakes, the enterprise was worked by half of the work force, but as the months passed by, the employees came back to work.

Recently, and while in the process of writing this proposal, Rico Banana, Inc. has been recognized as a model of resilience by the Resident Commissioner Jennifer Gonzalez, who accompanied Rear Admiral Brown and the manager of Fema, among others, as they visited the enterprise in Guayanilla. The same day they visited, Fulgencio Rodríguez, father, posted the following message in Facebook:

*When the indifference of some for the agriculture sector is strange, the knowledge on the part of these Officials comforts us. It reaffirms our free will and faith to do what we love, do what we like, and become impassioned working the land in spite of circumstances that interfere with our work. Today, more than ever, we feel pride for our staff of employees, for our agronomists, for our Administrative Personnel, who in spite of Hurricane María, the earthquakes and Pandemic, are here sustaining with their effort and work a Boricua enterprise firmly standing firm.*²⁴

²⁴ Fulgencio Rodríguez, Facebook, 16 de junio 2020.
Myrna Comas, <http://uprm.edu/cms/index.php?a=file&fid=12179>



La finca después del Huracán María, foto: Wilberto Rodríguez





Trabajo en la Planta. Foto: Libia M. González López

General Conclusions

By nature, agriculture and the banana industry is one of the most vulnerable sectors of our economy because it is threatened by natural disasters, climate change, plagues, too much rain or prolonged drought.

After years of discussion and investigation regarding the need to invest and pay attention to agricultural activity in Puerto Rico, the farming sector observes that agriculture is not a priority subject in different governmental projects. That is because it depends a great measure on will, going into debt to attend those projects on a daily basis and on the effort of those who, in spite

of obstacles that occur, persist. However, the same climatic global circumstances and local ones that we confront, puts this discussion as one that merits priority attention.

It is documented through the press and in the same government reports, that the insecurity of available foodstuffs was one of the problems that confronted the entire population during and after María. The damaged ports and hurricane activity in the Caribbean and the Atlantic limited navigation, and prevented the entrance to unload the customary imported merchandise to satisfy the food problem affecting the population. According to several official statistics, this importation of food equals about 80% of the general consumption of the population. This dependence on alimentary importation in emergency situations, such as hurricanes and earthquakes, limits food sales in the supermarkets that supply the stores the majority of the food that the population consumes.

The study on the effects in the banana industry that the Rico Banana case has presented us, shows how after María, many of them could not operate at full capacity, not only due to the lack of electricity, but because inventory became scarce. The lack of foodstuffs created consumers anxiety when they went to the stores to buy essentials and only found empty shelves. From here, many social and academic sources continue to point out the necessity of creating food warehouses and promote an agriculture responsible for supplying a substantial part of local food, generate jobs and activate the economy.

The development and strengthening of our banana industry is part of our cultural history, and provides jobs to many families, should be one of the principal objectives of any economical project for the present and future of Puerto Rico. Rico Banana, Inc. and other banana plantations in the Island are impelled by his work model and dedication to a prosperous industry that is necessary for the country. Nevertheless, the industry requires major support from the State and private sector in order to incorporate new technologies, to friendly eco practices and generate major investigations. Fortunately, it is about a product of our land and does not have to be imported and can be ripe or green, marinated or in syrup, small or apple bananas, or be a marmalade, cake or a frappe are all part of our table, our essential basket and prime material for other possible industries.

Note: I am grateful for all the collaboration from the Rico Banana, Inc. family, especially to its founder Fulgencio Rodríguez Hernández, his son Wilberto Hernández, to Beatriz Rodríguez and the Agronomist Edwin Pérez González for his help in writing this work. And in the same manner, I am grateful for all the generosity given by experts Agronomists Mildred Cortés and Manuel Díaz from the Agriculture Experimental Station at the University of Puerto Rico. I also thank Milagros Reyes and professors Jean Steeves and Marisa Franco for taking the time to help me in the edition and presentation of this paper.

