

Africans who were brought to Belize were familiar with rice because they cultivated African rice (*Oryza glaberima*) in West Africa.

Rice ≈ 1919

Rice (*Oryza sativa*) cultivation was probably introduced to Belize by the British in the eighteenth century because slaves on mahogany works were growing the crop in 1809 (Bolland and Shoman, 1975). By the 1880s, the Maya of western Belize were also cultivating this crop (Miller, 1887). Considerable amounts of rice were also being grown in the north, but the British did not see this crop as a potential industry. Much of the production was being sold to the United States as seed material - so much so that a mechanical thresher was being requested on the New River (Anon., 1890). This was at a time when \$50,000 was being sent to England to import Indian rice into Belize annually. The importance of such significant cash outflow from the small depressed economy were painfully obvious as the world emerged from World War I when the first World Food Crisis of the previous century swept across the globe. In 1919, the first scientific effort to grow rice was undertaken at the Botanic Station, six miles up the Belize River from the Haulover.

Unfortunately, this experiment was also the same year of the Spanish Flu epidemic and the greater portion of the crop could not be harvested as many workers had fallen ill. With time, cultivation in the rural Belize district grew and by the 1930s, a hardy, precocious but lower yielding upland rice known as the British Honduras Creole was being cultivated on half acre plots at places like Sibun, Manatee and Lucky Strike in central Belize. Rice was also being grown on lands between the Rio Grande and Moho Rivers belonging to D. Pierce and the Perrets family (Ex-Confederates) in the Toledo Settlement.

The production system in the north of the country was similar to Milpa corn whereby a piece of land was felled with axe and machete, burnt in the dry season and planted using a dibble stick at a rate of 5-7 seeds per hole. Only one crop was produced per year but during harvest time, threshing was done by men and women using 2-4 foot² threshing frames suspended three feet off the ground. The paddy in the northern districts was brought to Belize City by boat and sold to the government which owned a small diesel powered rice mill located where the Bliss Institute now stands. This mill distributed rice to the shops.

The first government assisted rice production programme came after Panama disease began affecting the banana industry in the Stann Creek Valley in 1918. In 1920, the Stann Creek Rice Growing Committee was organized and a small acreage was planted. This effort did not last because there was no mechanized harvesting, threshing or hulling of the paddy.

In 1933, a rice consultant from British Guiana was brought to Belize to diagnose the industry and to advise on its needs. The suggestion was that the southernmost district was the best location in the colony for rice production. In 1935, however, an experimental rice plot was planted in the Pine Ridge at Rush Pond near to Belize City. This attempt to grow rice in a Pine Ridge failed and emphasis began to shift to the Toledo district. A Lewis Grant rice mill was erected in Punta Gorda town in 1935 and a mechanical rice thresher was introduced into the Toledo Settlement the following year. The Punta Gorda rice mill was the first outside of Belize City and was capable of producing 600 pounds of milled rice per hour.

Based on the recommendations of the rice consultant from British Guiana, an agricultural station was created in the “Rancho” area of Toledo District at the location where the district agriculture office is now located. This was to support the East Indian rice growers operating near the former Toledo Settlement which the American Confederate settlers had virtually abandoned. A rice officer (Daniel Darius Haynes) (Figure XX) from British Guiana along with Mr. Clifford Densfield Warrington Adkins of Belize City were selected to conduct comparative experiments and encourage further rice production. C.D.W Atkins had worked previously in the rice mill in Belize City. He was familiar with rice cultivation in Punta Gorda because he was sent to manage the southern rice mill after all the rice from the northern districts was processed in Belize City.

Mr. Clifford Adkins was awarded a Meritorious Award for service to Belize in 2011.

One of the first extension methods used to stimulate rice production was a farmer competition for the best ½ acre of “dibbed” and transplanted rice. Judging at a “farmer’s field day” event saw James Richards and Josephine Richards winning the top two prizes of a Ransome Victory Plough and \$10. Consolation prizes were awarded to personalities including Albert Williams, E. Gonzalez, H. Williams, T. Tulsey, Emma Parkinson, Lena Morey and James Duncan. The result of this competition was that by 1938, a considerable increase in rice production was recorded although there were swarms of the South American locusts (*Schistocera paranensis*) in the Toledo District. Rice production started to decline in the Belize District in 1938.

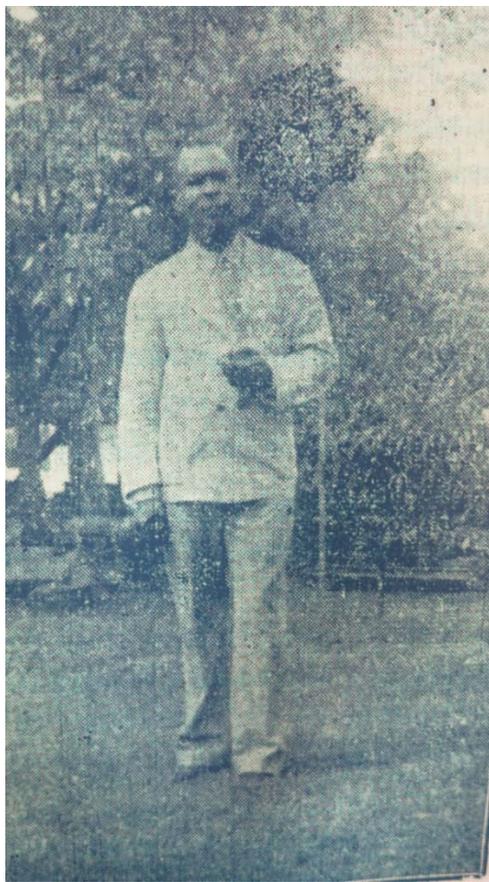


Figure 1: Agriculture Instructor Mr. Daniel Darius Haynes who pioneered rice production in the Toledo District in the 1930s.

The year of 1938 was also the year in which the British Guyana rice # 79 became the rice promoted by the Agriculture Department to replace the traditional “British Honduras Creole” rice. This was because #79 produced 1,500 pounds per acre versus 1,082 pounds from B.H. Creole in the Toledo environment.

Research and extension work carried out by Haynes and Atkins opened rice growing in Mafredi and the Dump areas. This scheme also introduced rice growing to Barranco, Temash, Moho and Sarstoon. Hanes retired in Belize and C. D. W. Atkins stayed in the Toledo District and saw the Dump area become a major producer of rice in the 1930s.

In the early 1950s, local rice production systems in Toledo were still seen as too scattered and remote, utilizing poor topography and machinery. Colonial Development and Welfare funds were secured from the British government to move away from shifting agriculture and develop permanent semi mechanized farms in the Dump area and villages further westward along the Punta Gorda - San Antonio road in. By 1958, ninety-seven acres of BH Creole, BG 79 and a new variety (Centry Patna) were mechanized at the Dump area in Toledo. In these villages, land was prepared using subsidized

government owned machinery. This resulted in a tight 8 week planting period for both the East Indians near Dump and the Ketchi and Mopan farmers further west. Researchers began trying new varieties such as McKenzie Large which outproduced BG79 by two times. The fact that only one variety (CICA 8) was adopted resulted in a very demanding harvesting period.

For a brief period, the cultivation of rice using upland farming systems was contemplated but this was abandoned for traditional lowland methods because weed control in upland rice was next to impossible. Rice was now the main crop produced in the Toledo district. Threshing was contracted to Mr. D. Saupaul. The Marketing Board also built drying floors and sheds for threshers.

In 1954, C. D. Atkins was transferred to the Belize District and an engineer (Mr. Stanton Morrison) was hired from Texas to oversee the creation of a pilot project aiming at complete mechanization of irrigated rice in Belize. An appropriate site was identified near Mussel Creek between Burrell Boom and Bermudian Landing in the Belize River valley. This became known as the Mussel Creek Rice Station. These two managers and three workers were responsible for construction of a 200 acre reservoir and for construction of the farm. The reservoir was constructed using the natural drainage from a pine ridge and the contour of the land was used to create a dam. At the lower end of the dam, a sluice gate was built and this allowed for irrigation without use of pumps.

Land was cleared with D7 tractors and the vegetation lined up in a number of windrows within the fields. The land was then ploughed with disc and moldboard ploughs and harrowed with disc and spike tooth harrows (Figure XX). The land was then leveled and the berms made before dikes were built around the entire farm. Planting of selections of BG 79 and BH Creole was done with a drill which also injected the fertilizer. Using this method, 30-35 acres were planted per day. The first crop in 1956 was small but in 1957, 143 acres were planted. The yield of was 1,881 pounds per acre.

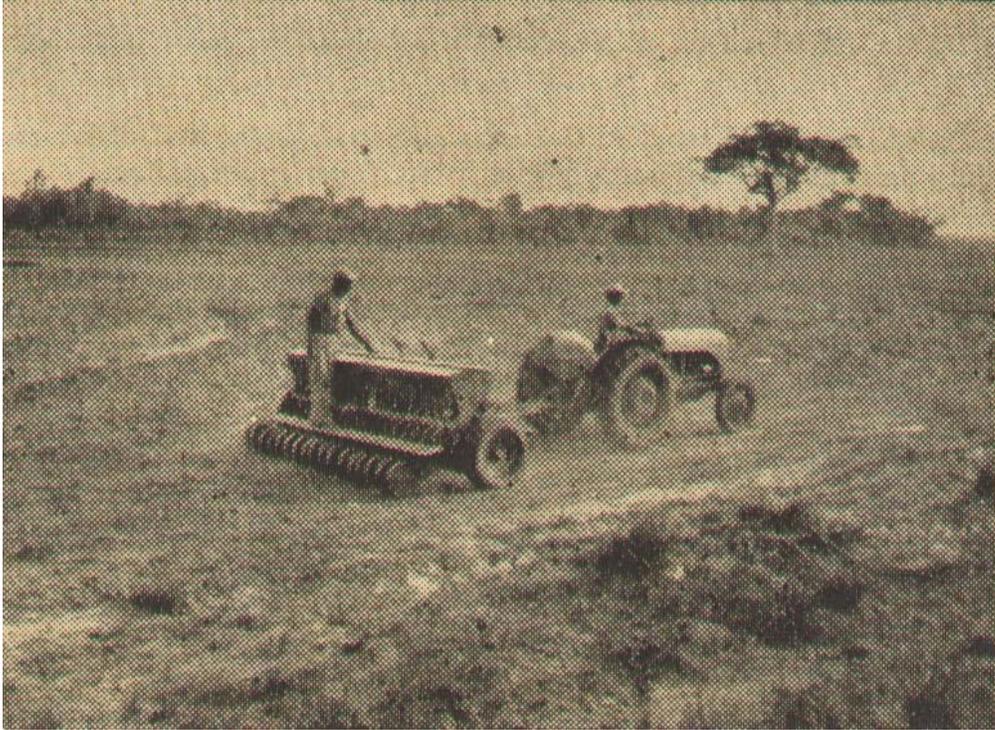


Figure 2: Tractor preparing land for rice planting.

Harvesting was done using Massey Harris 80 Rice Special and a Oliver Model 40 rice combine, each operated by one man (Figure XX). These machines cut, threshed and winnowed the rice which was then automatically pumped into rice buggies driven alongside the combines. This system allowed harvesting of paddy at 50,000 pounds per day. The harvested rice was then dried using natural air or air heated from steam boilers. The product was then sprayed with dieldrin and stored. The Government considered that this project had proved the concept of fully mechanized rice production in Belize and a field day was held to offer the investment to local businessmen. Unable to find a local buyer, the Government sold the project in 1958 to Tennessee Agricultural Ltd, an American company.

Tennessee experienced a number of startup problems and its 1958 crop was written off for logistical reasons. The rice disease Hoja Blanca was detected in the BH Creole, Century Patna and Blue Bonnet varieties causing a loss of 90% of the rice crop in the following year. However, entry of the Tennessee Agriculture Ltd into the Belize District did stimulate small farmers in villages like Scotland Half Moon, Bomba and Isabella Bank to produce good crops between 1961 and 1964. To address the Hoja Blanca problem, a variety called Dima was imported from El Salvador. Because this

caused a severe harvesting bottleneck, Nilo, another El Salvador variety, was also introduced. Shortly after, an American investor (Mr. Albert Bevis) also developed another rice project on a 36,000 acre estate on the south bank of the Belize River in 1963. This project was known as Big Falls Ranch (BFR). Big Falls Ranch was able to produce two crops in 1972 but faced various difficulties. BFR was supplying 60% of the rice in the country from 6347 acres in 1973. Belize became briefly self-sufficient in rice in 1972 and was exporting to Jamaica. However, Big Falls Ranch faced financial difficulties as early as 1982 and the farm was closed in 1987. In that year, Belize had to import 2.6 million pounds of rice.



Figure 3: Mr. Clifford Atkins harvesting of rice with a combine at the Mussel Creek Rice Station.

While large scale rice systems were being pushed in central Belize, the Milpa system persisted in the south and once again the Toledo district became the largest producer of rice. Toledo remained the leader because farms in Mafredi, Dump and San Pedro Colombia were being mechanized while mechanization in Mussel Creek failed. Soon after, a 2,000 ton rice mill financed with CDB and CIDA funding was transferred from Belize City to Big Falls Toledo. The underutilization of the mill showed that the acreage of rice in the Toledo district had been overestimated.

The two private sector efforts in the Belize District were followed by another Government intervention in the form of the Toledo Rural Development Project (TRDP) of 1983 which was able to build an experimental rice farm and develop a technological package for

tractor-based lowland rice production in Blue Creek (Toledo District). The TRDP project concluded that mechanized rice production as practiced in the district was not sustainable. This was because the system was rainfed and weeds were not being controlled by flooding. In 1988, the Toledo Agriculture and Marketing Project (TAMP) did some work on rice and was instrumental in introducing new varieties such as May Belle, Cica 8 and Cica Negra from Columbia. One of these was further selected by Mr. Anil Sinha of CARDI Belize to produce a new variety for Belize called CARDI 70.

In Blue Creek (Orange Walk District), Mennonites began large scale farming of lowland rice in 1978. Considerable investments were made on heavy combines, irrigation pumps, and tractors.

The Taiwanese mission to Belize which was established in 1991 also became involved in the rice industry as a source of pure seed for farmers. The Taiwanese mission produced thousands of pounds of CARDI 70, Jasmine 85 and Taichung Sen 10 rice varieties for sale to farmers in the Toledo District. The Taiwanese technical mission also introduced machines such as small self propelled power tillers, harvester-combines and threshers which had been developed for small family farms in the Orient. With a reliable supply of seeding material and a combination of large Mennonite farmers and small Creole, East Indian and Mayan farmers, Belize finally became self sufficient in rice in 2002.