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# The Agricultural Economy

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U. S. DEPARTMENT OF AGRICULTURE  
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★ ★ ★ of  
★ **Surinam**  
★ *(Netherlands Guiana)*

U.S. Department of Agriculture  
Economic Research Service  
Regional Analysis Division



Growth Through Agricultural Progress





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Photographs used by courtesy of the Surinam Department of Agriculture. Stars on the cover appear in Surinam's flag and represent the country's five races.

June 1962



## SUMMARY

Surinam has a developing economy. The country is in a relatively good financial position with a gross national product of \$74 million in 1959, agriculture's share being less than a sixth.

Surinam is also a growing market for a wide variety of agricultural imports as its interior is opened up. Agricultural production is increasing and rice is exported in quantity. But the impetus given to the economy by the steady output of bauxite, the push into the interior, and activity in major development programs, will expand demand for agricultural production faster than production is expected to rise.

Almost all agricultural production is on the coastal plain. The rest of the country is covered with dense tropical forests and is uninhabited except for some tribes of Amerindians (American Indians) and Negroes generally living along the rivers. These deep rivers and the canals that traverse the country are the principal means of transportation, but they present obstacles in building access roads to timber and mining areas in the interior.

Surinam's economy is dominated by bauxite, but agricultural and forest products play an important part. Agriculture accounts for only 11 percent of the value of all exports but it is the major occupation of the population. Bauxite accounts for about 80 percent of total exports and is the major employer of nonagricultural labor, though the number involved is not large. Forest products account for 8 percent of exports.

The value of agricultural production in 1959 was \$12.6 million, 31 percent higher than in 1955. In 1959 there were 16,000 small and medium-size farms and 30 plantations. The plantations grow sugarcane and tree crops principally and occupy less than a third of the cropland. The small farms produce most of the rice, bananas, plantains, coconuts, and domestic food crops.

Export crops include rice, bananas, plantains, coconuts, sugar, coffee, cacao, and citrus. Rice is the most important crop both domestically and in the export trade, accounting for more than half the value of all agricultural exports in 1959.

Domestic food crops include corn, peanuts, cassava, tomatoes, certain green vegetables, and root crops, in all of which the country is self-sufficient. But potatoes, meat and dairy products, flour, pulses, canned fruit, and vegetables must be imported to meet food requirements. Surinam gets from the United States a large part of these foodstuffs, also machinery and equipment for use in the capital investment programs. Its exports to the United States are mainly bauxite and forest products.

The livestock industry is increasing steadily. This expansion is presently limited to the coastal areas, the intermediate savannas having been found unsuitable because of the excessive fiber content of the local grasses. However, the savannas near the Brazilian border are now being considered for possible future livestock expansion.

In order to achieve a more balanced economy with a higher standard of living, the Government undertook a Ten Year Development Plan in 1955. This program includes the diversification of agriculture, the improvement and increased production of livestock, and the expansion of such crops as citrus fruit, cacao, and bananas for export.

Partial mechanization is to be found on numerous rice farms, but the only totally mechanized farm is a government-sponsored rice project.

The major obstacles to the expansion of agricultural production are the high cost of developing the swampy clay-based lowlands of the coastal plain, and the difficulty of transportation via waterways and land. Surinam's inadequate roads hamper the marketing of agricultural products.

The high cost of coastal development and the gradual penetration of roads toward the interior are expected to shift the direction of development to the interior areas and the utilization of these lands for agriculture. When this is accomplished, government services to agriculture will need to be greatly strengthened in agricultural education, research and extension.



Growth Through Agricultural Progress

## THE AGRICULTURAL ECONOMY OF SURINAM

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### INTRODUCTION

Surinam, also known as Netherlands Guiana, became a member of the Realm of the Netherlands in December 1954, prior to which it had colonial status dating back to the middle of the 17th century. It is located on the northeast coast of South America.

Although it is about the size of the State of Wisconsin and almost four times the size of the Kingdom of the Netherlands, it has a population density of only 4.5 persons per square mile as compared with 69.5 persons in Wisconsin and 737.9 in the Netherlands. However, Surinam's population, estimated at 250,000 in 1959, is concentrated on the coastal plain, with a density of about 130 persons per square mile. Its per capita income of \$290 is low, being about the same as that of the Dominican Republic and above Guatemala's per capita income of \$180.

### PHYSICAL CHARACTERISTICS AND POPULATION

Surinam lies between French and British Guiana and is bounded by the Marowijne River on the east and the Courantyne River on the west. The Atlantic Ocean forms the northern boundary and the Tumuc-Humac Mountain chain the southern boundary.

#### Topography

Surinam's area of 55,212 square miles (35,335,680 acres) may be roughly divided into three main regions lying parallel to the coast: (1) A fluvial coastal plain approximately 10 miles wide on the eastern border and gradually widening to about 50 miles on the western border--the capital city Paramaribo is here at the mouth of the Surinam River; (2) a belt 30 to 40 miles in width south of this plain where scattered savannas appear in the dense forests; and (3) the hilly and mountainous isolated interior of the country extending to the Brazilian border, which is relatively unknown and of little economic importance at the present time.

A distinctive feature of the coastal plain is the sea-level character of the terrain, which is dissected by numerous tidal rivers that run parallel to the coast before turning seaward, and by canals that form the chief means of transportation into the interior. Much of the coastal area is below the level of high tide, so diking, called "empoldering" locally, has become necessary in



order to utilize the land. The interior is chiefly a swampy and hilly jungle which in places rises abruptly to form isolated peaks, the highest of which (4,120 feet) is in the Wilhelmina Mountains.

### Climate

Surinam has a hot, humid climate. Temperatures are relatively uniform throughout the year. The sea breezes reduce the temperature of the coastal plain. Surinam is not in the hurricane zone and thus escapes the severe wind damage of the lands to the north in the Caribbean.

Relative humidity is always high, averaging 81 percent. Rainfall is heavy on the coast and increases in the rugged and forested interior. Paramaribo has a mean precipitation of 91 inches. The areas of least rainfall are in the western coastal district around Nickerie. The average rainfall ranges between 90 and 100 inches a year. Cacao, citrus, and other crops thrive on the coastal plain.

Surinam may be said to have four seasons: A short dry season from February to April; a long rainy season from April to July; a long dry season from July to November; and a short rainy season from November to February. The records of the past show that a drought is experienced every 14 to 17 years. Droughts occurred in 1912, 1926, 1940, and 1957. The reason for the periodic recurrence of dry years is not known.

### Soils

The chief agricultural lands of Surinam are located on the low coastal plain. These soils are considered more fertile than those in the interior. The coastal area is made up of wet clay with occasional sand and shell ridges--former beaches which rise 3 to 5 feet above the low clay land and thus are never flooded. Paramaribo is situated on such a ridge. Most of these clay soils are suitable for rice cultivation, and many of them if adequately drained are also suitable for pastures. The Indonesians and East Indians (originally from India) live on the ridges and plant rice in the lowland clay soil. The soils of the drained swamp areas are also suitable for growing rice.

By contrast, the soils of the interior which occur in most of Surinam are permeable, highly leached, and low in nutrients. Much of the interior is steep with eroded mountains and plateaus supporting scant vegetation. The combination of steepness, low fertility, and ease of leaching imposes a limitation of low potentiality for agriculture, although there may be widely scattered areas with good soils that may be developed.

### Population

The population of 250,000 is small relative to the size of the country, but it is concentrated in the narrow coastal strip about 1,930 square miles (1,236,000 acres) in size. Approximately 104,000 persons live in Paramaribo. In addition, there are estimated to be 37,000 Negroes and Amerindians living in tribes outside the regularly occupied areas.



The population is increasing rapidly at between 3 and 4 percent--a rate of increase among the highest in Latin America, exceeding some of the high growth rate countries in Central America. It comprises many different races. The census taken in 1950 showed: 41 percent Creoles (Negroes and mixtures), 35 percent East Indians, 20 percent Indonesians, and 4 percent Europeans and Chinese. The Negroes in the interior are descendants of escaped slaves that took refuge in the jungle forests and reverted to their African mode of living. These tribal groups have settlements along the rivers and engage in balata bleeding and cutting and transporting timber.

Agriculture employs well over half the working population. Of the 93,000 persons living on farms in 1959, about 39,000 (18,000 men and 21,000 women) were engaged in agriculture. Over 3,000 of these, mostly men, were hired permanent workers, the rest being farmers and members of their families. A large number of men and women farm as a secondary occupation and all supplement their income by working in other occupations. The small size of the farms results in seasonal unemployment and underemployment.

### INSTITUTIONAL CHARACTERISTICS

#### Land Use

Less than 1 percent of the land area of Surinam is in cultivation and in grazing land; the remainder is mostly forest and swamp land and some abandoned plantations. Land use in 1959 is given in the following tabulation:

	<u>1,000 acres</u>	<u>Percent</u>
Land in farms:		
Planted:		
Field crops.....	79.8	
Tree crops.....	16.7	
Other.....	<u>3.3</u>	
Total.....	<u>99.8</u>	
Less double-planted:		
Second planting.....	5.8	
Interplanting .....	<u>.4</u>	
Total.....	<u>6.2</u>	
Total land in crops.....	<u>93.6</u>	
Grassland.....	<u>14.1</u>	
Agricultural land.....	107.7	0.3
Farm yard and crops.....	4.3	
Other land.....	<u>149.5</u>	<u>.4</u>
Total land in farms.....	261.5	.7
Forests, roads, other waste and undeveloped land.....	<u>35,074.2</u>	<u>99.3</u>
Total area.....	35,335.7	100.0

About 82 percent of the cropland is in field crops, produced mainly on small farms for local consumption (fig. 1). An exception to this is sugar, which is grown by the plantations. The remaining 18 percent is in tree crops, more than half of which are grown by the plantations.

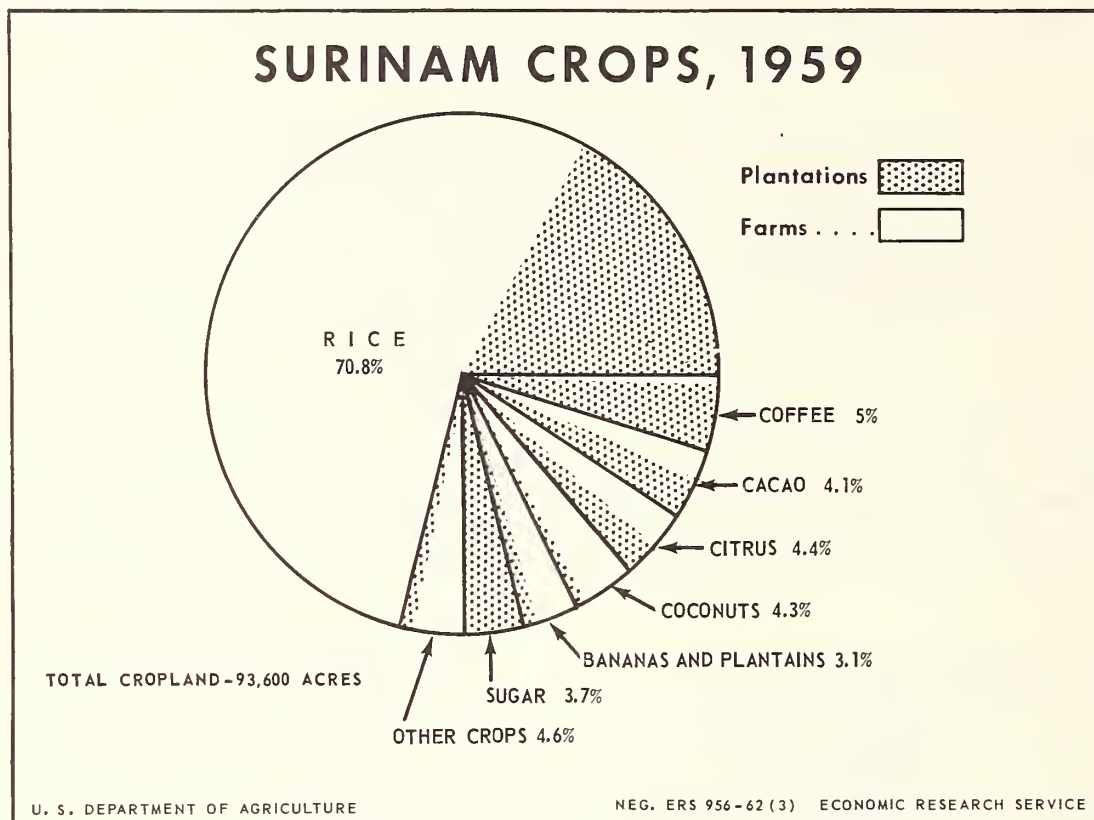


Figure 1

Land suitable for agricultural purposes is being increased by the Government through its various programs for land reclamation. In the new projects the Government, instead of the individual farmer, is constructing all the irrigation and drainage canals as part of the land reclamation. The crop and pasture land increased at an average annual rate of 3 percent between 1956 and 1959.

Most farms are 4 to 6 acres in size. A few plantations are 250 acres or more. Small-scale agriculture developed in two phases after the abolition of slavery. The first phase was characterized by Creoles working on small plots of land planted with food crops or coconut trees, or on cacao estates which they left after the outbreak of a cacao disease. The second phase took the form of rice cultivation by East Indians and Indonesians who settled as small-scale farmers.

These two races by tradition are well adapted to the cultivation of rice, while the Creole shows a preference for tree crops. Almost half of the farms, occupying 45 percent of the farmland, are operated by East Indians; and 38 percent, occupying 14 percent of the farmland, are operated by Indonesians. Because of the tremendous increase of these two races as farmers in a country where the coastal areas are so well suited to rice-growing, this commodity has become Surinam's principal agricultural export.

Land tenure for over half the farmers is based on rental from private owners or from the Government (table 1). Rentals from the Government cover 22 percent of the farmland and from private owners, 7 percent. Roughly half of the farmland is owned by its occupant, and almost a fifth is on long-term lease. A few of the large landowners use a tenant-farming system to take care of their greater labor requirements.

### Production Practices

Before the empoldered land is suitable for farming, it requires drainage and irrigation for such crops as rice and bananas. This undertaking is carried out by the Government which then leases the land to small farmers upon their meeting certain requirements.

Most of the farmers use hand tools: the axe, hoe, and machete. Oxen provide the draft power for plowing and cultivating. Mechanical cultivation is difficult for most crops since the land is cut up into small beds about 26 feet wide and 33 feet long by irrigation and drainage ditches. However, the level rice lands lend themselves more readily to mechanization. More than 70 percent of the arable land is planted to rice, chiefly in the districts of Nickerie and Surinam, and most of the available equipment is to be found in these two districts. Over 300 farms in the district of Nickerie, 100 in Surinam, and 100 scattered in the other districts have been mechanized to some extent. There is one large rice farm in Nickerie which is totally mechanized.

According to the 1959 census, Surinam had in use 400 wheel tractors, 175 crawler tractors, about 50 garden tractors, 790 tractor plows and harrows, and 1,470 animal-operated plows. The wheel tractors were mostly for farm use in the rice-growing areas. Most of the small farmers owning tractors do custom work for non-owners. Less than half the rice farmers employ mechanical tillers, and only one-fourth use mechanical threshers; these are generally rented. About 33 percent of all the farmers leave their rice fields untilled; and the rest till and thresh by hand or with animal power.

When sandy lands are used they need to be heavily fertilized. Commercial fertilizers, insecticides, and fungicides are imported. They are expensive and not widely used. However, imports of these items have been increasing and more than doubled in quantity between 1954 and 1959.

Soil experiments have indicated that on a large part of the clay soil area, and in the areas used by the small landholders, a dressing of nitrogenous fertilizer is useful. The application of phosphate on the poorer soils also has been found beneficial.



Table 1.--Surinam: Number and area of holdings by type of tenure, 1959

Type of tenure	One tenure		Average		More than one tenure		Total	
	Holdings	Area	size	Area	Holdings	Area	Holdings	Area
	Number	acres	Acres	acres	Number	acres	Number	acres
Owned by occupant.....	2,676	86.7	32	36.5	---	1,000	---	1,000
Long-term lease.....	283	31.6	111	15.9	---	47.5	---	47.5
Rented from government..	6,172	37.9	6	18.9	---	56.8	---	56.8
Rented from owners.....	2,306	10.2	4	7.5	---	17.7	---	17.7
Other.....	1,723	9.2	5	7.1	---	16.3	---	16.3
Total.....	13,160	175.6	---	85.9	3,071	1/16,239	---	261.5
								100
								47
								18
								22
								7
								6

1/ Includes 8 very small holdings of insignificant acreage.



## Government Policies

Surinam's policies to develop the country are based principally upon the Ten Year Development Plan, the Brokopondo Project (a large undertaking by the Surinam Aluminum Company to construct a hydroelectric dam, aluminum smelter, and alumina plant), the fostering of industrial development, and the greater exploitation of the country's natural resources--timber and minerals.

The Government had carried out several land settlement projects previous to the 1955-64 Ten Year Plan. For example, under the Lelydorp Plan the land was cleared and planted in 1952 and divided into farms 27 acres in size. They were planted with cacao, oil palms, citrus, coconuts and grasslands, leaving 5 acres for houses and gardens. Each farm was provided with a 2-bedroom house, 8 head of cattle, a number of hogs and poultry. The farmer was expected to begin his payments on the farm when his land was in full production. Living costs were also advanced. Considerable difficulty was encountered in finding settlers who met all the requirements of the Government.

Another undertaking was the La Poule project in the Saramacca district which required reclamation of an old plantation by diking and drainage. About 55 families were settled on a long-term lease-ownership arrangement. Diversified crops were required, and houses were built under an aided-self-help plan sponsored by the Government. Better housing is one of the incentives to help keep people on the farm (fig. 2).



Figure 2.--A typical Surinam farmhouse under construction.

A different type of project is the Wageningen project for mechanized rice culture. This is described in the section on agricultural production.

The Ten Year Plan (TYP) 1955-64 (to be extended to 1969) is a program designed to broaden the agricultural base, increase production of crops for domestic consumption and for export, and increase the size of farms, the income of farmers, and employment opportunities. Certain unfinished projects from an earlier program have been merged into this program. The plan calls for an expenditure of \$68.6 million over the ten-year period 1955-64, with the greatest emphasis being placed on the transport (29.0%), agricultural (23.0%), and social (12.7%) sectors. It is financed one-third from Surinam current revenues, one-third by grant from the Netherlands, and one-third by long-term Netherlands loans. Shown below are allotments for agriculture and projects directly or indirectly affecting agriculture. The TYP includes the Santo Bono poldering project (to make more land available for farmers), the East-West Highway, rural electricity installations, water wells, schools, and a geo-physical survey of the country.

TYP program	Allotments for 1955-64	
	<u>Million dollars</u>	<u>Percent of total</u>
Agriculture	15.8	23.0
Roads-Communication	19.9	29.0
Education	3.3	4.8)
Public Health	5.4	7.9)
Forestry	3.5	5.1
Aerial Survey	1.2	1.7
Other	<u>19.5</u>	<u>28.5</u>
<b>Total</b>	<b>68.6</b>	<b>100.0</b>

Coordination in planning the TYP is obtained through a Surinam government agency, Stichting Planbureau Suriname (Surinam Planning Bureau Foundation). Investment under the TYP has not progressed as rapidly as intended because of insufficient trained technical and administrative personnel, lack of adequate machinery and equipment, and bottlenecks in the planning and execution of projects. Through 1959 approximately \$27 million of the \$68.6 million had been expended. Strenuous efforts are being made to increase the level of investment under the plan, especially in directly productive projects. And the Governor, in his 1960 annual speech, stressed the importance of increasing land reclamation and the giving out of land to farmers.

The Brokopondo Project was approved by the Netherlands Government and an agreement was signed in January 1958 between the Surinam Government and the Aluminum Company of America. The agreement took the form of a joint venture whereby a new Alcoa unit known as the Surinam Aluminum Company (Suralco) would undertake the construction of a hydroelectric dam at Affobakka on the Surinam River and an aluminum smelting plant. Preliminary work commenced at the beginning of 1959 and construction is to be completed in 1965. An alumina reduction plant will be built later.



The Government is planning a new agricultural credit bank which may be established early in 1962. At present, farmers in new settlement areas obtain credit (termed "special credit") from funds estimated for the entire project. These funds are deposited in the People's Credit Bank, a multi-purpose, semi-governmental bank, and paid out as required in farmers' plans. Farmers outside project areas obtain limited loans (termed "normal credit") from the People's Credit Bank and other credit agencies.

The major problem with "normal credit" is that the approval, conditions, and terms of the loan are sometimes not suitable to the needs of the farmer and the farm. A major problem in the "special credit" area is in providing sufficient technical assistance and supervision to the farmer in the utilization of his new land.

### Education, Research, Extension

There has long been compulsory elementary school education and the literacy rate is over 80 percent. But Surinam has no technical education facilities in agriculture and is dependent on overseas facilities to carry on this important process. There are at present 30 boys studying agriculture in a university in the Netherlands.

A government practical agriculture training school for boys 15-17 years of age with an elementary education accommodates about 30 students. A second farming school will be started at Koewarasan. The Government plans to extend agricultural training, and trials will be made to teach agricultural subjects in elementary and secondary schools. The Agency for International Development (AID, formerly the International Cooperation Administration) of the United States of America has assisted with training programs related to accomplishing some of the main objectives of the Agricultural Development and Production Plan of the Surinam Department of Agriculture. This plan is aimed at the diversification of agricultural production.

The modest amount of scientific research carried on in Surinam is centered largely in governmental rather than private circles and is tied to economic development projects and programs. Agricultural experiments are conducted by the various sectors of the Department of Agriculture, Animal Husbandry and Fisheries.

Two major non-governmental organizations carry on research (although both are, to some extent, indirectly supported by Netherlands and/or Surinam Government funds); these are: (1) Stichting Machinale Landbouw (the Foundation for Mechanized Agriculture) which operates a huge mechanized rice-growing project known as the Wageningen Project, in the Nickerie District, and carries on agricultural experiment work; and (2) Stichting Wetenschappelijk Onderzoek Suriname-Nederlandse Antillen-Wosuna (Foundation for the Advancement of Research in Surinam and the Netherlands Antilles). Wosuna, a basic research operation in Surinam, is a Netherlands organization, and its financing is largely from the Netherlands. Its research programs are carried on by established Netherlands scientists, though in some instances younger graduates are given grants. Research is being done in several fields including botany, breeding of new rice varieties, dairy and beef cattle breeding, and the catching of fish.

The findings of research have not been passed on to the farmers to any considerable extent, but this situation is improving as the Extension Service, with the assistance of the AID Mission, is establishing sound communication with the farm people through Rural Youth and Home Demonstration projects. Local lay-leadership is also being developed. Steps have been taken toward cooperative efforts among the farmers. These programs are established on a sound base.

### Transportation and Marketing

Surinam depends heavily on its extensive inland waterway system of rivers and canals for transportation of freight and passengers between points in the coastal plain area and to the interior. The rivers are navigable to ocean-going vessels of shallow draft as far as Paranam on the Surinam River and as far as Moengo, more than 100 miles from the sea and reached by the Commewyne and Cottica Rivers.

The Surinam Government Railroad is a single track line extending 82 miles south from Paramaribo. It will be discontinued as soon as an adequate road for traffic is provided.

There are few public roads but traffic is relatively light. These are largely unsurfaced and are confined to the immediate neighborhood of Paramaribo, the major market in Surinam, and other settlements near the seaboard. Completion of the East-West Highway is expected before the middle of 1962. This road will connect Albina on the eastern border with Nieuw Nickerie on the western border. An 18-mile asphalt highway extends south from Paramaribo to Paranam. From this point a road has been constructed to the Brokopondo damsite at Affobakka, and a bridge across the Surinam River at this site is under construction. The completion of this project will give access by road to a significant area of the interior. This is expected to be followed by an expansion of timber operations, and a possible extension of agricultural land with potential crop diversification. The Government has announced plans for the road to be continued southward from Affobakka to open the southern portion of the country.

Paramaribo, the chief sea and customs port, is located 12 miles inland on the Surinam River and handles almost all agricultural exports and other foreign trade for the entire territory with the exception of bauxite, which is loaded at Paranam and Moengo where docks have been especially constructed to handle this ore. The smaller ports of Albina, Coronie, and Nickerie handle coastwise traffic almost exclusively. Plans are under way for the improvement of docking and warehouse facilities which have been inadequate.

Marketing is a major problem in Surinam. Produce is brought to market by boat, trucks, carts, bicycles, or on foot. Almost half the small farmers sell their products to middlemen and the rest sell directly to the consumer, either door to door or in the local market. Some have stalls for the display of their products but others put their produce on the ground, for there is little regulation to assure sanitary conditions or quality. Prices fluctuate widely during the same day and from day to day, and sales are made by quantity and not weight. The development of agriculture depends a great deal on the solution of these marketing problems.



The Department of Agriculture created a marketing division about 4 years ago to study and improve the marketing situation and find foreign markets for agricultural products. Practically the only market for surplus produce is Paramaribo; but little provision is made for storage and carryover of produce from day to day, causing considerable fluctuation in prices.

The Government is trying to stabilize the market for fruits, vegetables, poultry, fish, and other produce through an organization, Landbouw Producten Centrale (Farm Produce Center), which buys directly from the farmers and sells with a reasonable margin of profit. This Produce Center also accepts surpluses of certain crops at specified prices. An effort is being made to improve the preparation, display, grading, and marketing of produce.

Trial shipments of bananas have been sent by the government to the Netherlands and the United States with some indications of possible success. Problems exist of quantity available for shipment, reliable and adequate ships, and competition.

#### AGRICULTURAL PRODUCTION

Agriculture occupies an important place in the economy of Surinam. It is characterized by a large number of small independent farms, which fact contributes significantly to the economic and political stability of the country. As an economic pursuit, however, it is not efficient and, according to estimates, accounts for only about 14 percent of the gross domestic product.

The principal export crops are rice, citrus fruits, and coffee. These crops occupy 80 percent of the cropland, with rice predominating. Other export crops include sugar, cacao, coconuts, bananas and plantains (table 2).

Food crops grown entirely for domestic use include corn, cassava, peanuts, tomatoes, pulses, root crops, and other fresh vegetables. In addition, a large portion of the export crops is consumed locally, especially rice, sugar, oranges, bananas and plantains. A small number of fresh coconuts is exported but the greater part is consumed locally either as fresh nuts or in the form of oil.

Surinam's average daily per capita food consumption is estimated to be slightly over 2,500 calories, which is considered adequate in terms of minimum nutritional energy requirements. However, reports indicate local shortages in certain other food requirements. Such deficiencies include proteins, calcium, and certain vitamins and vary for income groups, racial or religious groups, and other factors. For example, certain groups are vegetarians and depend primarily on rice. The Bureau of Public Health and the Extension Service are doing some work in educating the people with respect to diets.

In the past there were large plantations of such crops as cacao and sugarcane, but they were abandoned either because of disease or the shortage of labor following the emancipation of slaves. Citrus, however, is a more recent industry and is growing in importance.

In an effort to increase the value of agricultural production, the Government is stressing, to an ever greater degree, cattle raising and the production

Table 2.--Surinam's principal crops: Area, production, net trade, and quantity available for domestic consumption, 1959

Crop	Harvested area	Unit	Production	Net trade	Available for domestic consumption or stocks
	: 1,000 acres				
Rice, milled.....	70.5	Short tons	52,046	-18,948	33,098
Sugarcane .....	3.3	do.	<u>2/</u> 10,031	<u>2/</u> -1,049	<u>2/</u> 8,982
Coffee, raw .....	3.6	do.	551	-425	126
Cacao beans .....	2.2	do.	270	-246	24
Oranges .....	2.6	1,000 pieces	58,502	-29,859	28,643
Grapefruit .....	.7	do.	15,167	-11,990	3,177
Other citrus .....	.3	do.	4,083	-78	4,005
Bananas .....	.9	1,000 bunches	316)	-4	687
Plantains .....	1.0	do.	375)		
Coconuts.....	3.0	1,000 pieces	5,985	-288	5,670
Coconut oil .....	---	1,000 gallons	81	<u>3/</u> 255	336
Corn .....	1.5	Short tons	1,137	0	1,137
Peanuts .....	.8	do.	358	0	358
Other pulses .....	1.1	do.	304	1,084	1,384
Cassava .....	.7	do.	2,570	0	2,570
Other root crops.....	.1	do.	487	<u>4/</u> 1,788	<u>4/</u> 2,275
Tomatoes .....	.3	do.	572	0	572
Other fresh vegetables..	1.2	do.	2,246	<u>5/</u> 870	<u>5/</u> 3,116

1/ Minus sign denotes exports.

2/ Raw sugar.

3/ Equivalent of 1.9 million pounds of oil.

4/ Mostly potatoes.

5/ Onions and garlic.

of bananas and citrus for export. Bananas and the tree crops yield greater financial returns for effort expended than does rice, a low income producer.

### Export Crops

Rice.--Despite the fact that rice occupied 75 percent of the total harvested area in 1959, its money value was just 56 percent of the value of all crops produced (fig. 3). Although rice is a low gross-return crop, some lands are too heavy and wet for most other crops. Nickerie in the western coastal area of Surinam is the principal rice district, producing over half of the country's rice. The total harvested area in 1959 was about 71,000 acres of which over 37,000 acres were in Nickerie. The total output was 173 million pounds of rough rice which is 56 percent higher than the 1950 production (table 3). The record production in 1958 was due to the extra planting of the

Table 3.--Rice: Surinam area and production averages 1935-49, annual 1950-59

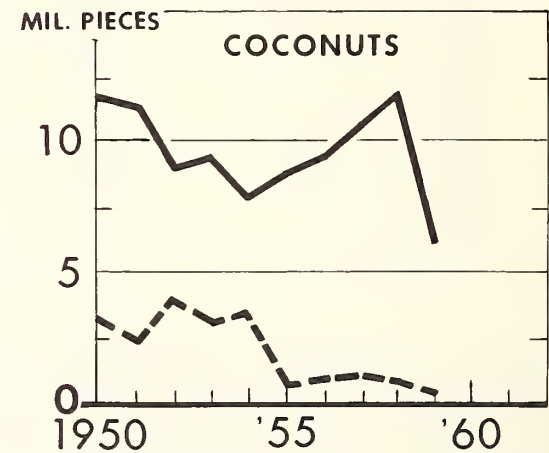
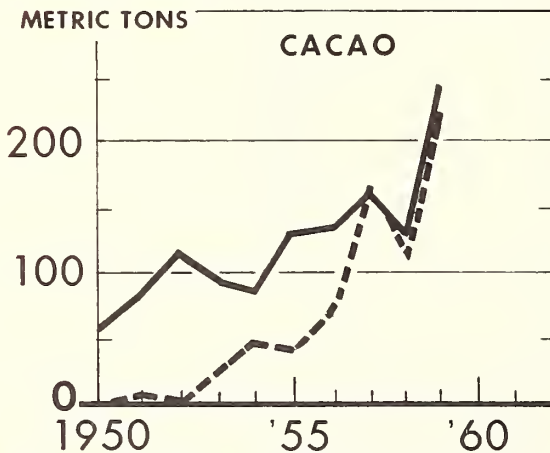
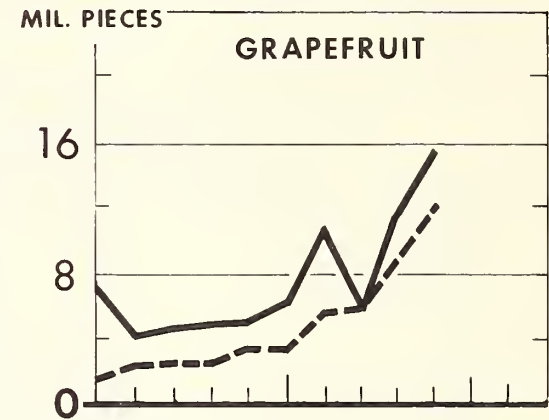
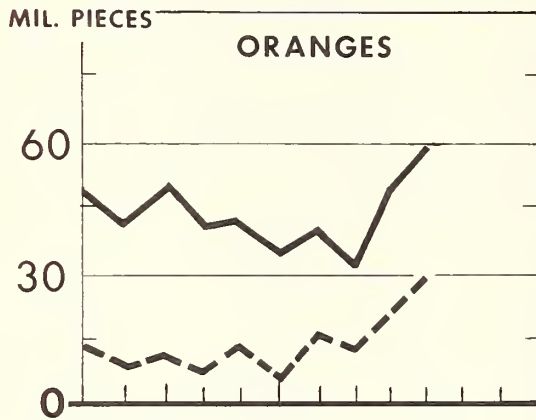
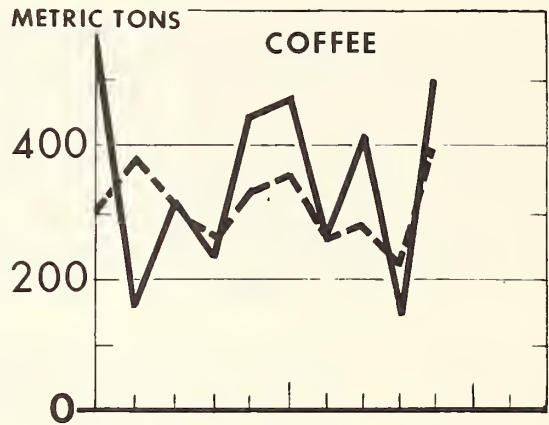
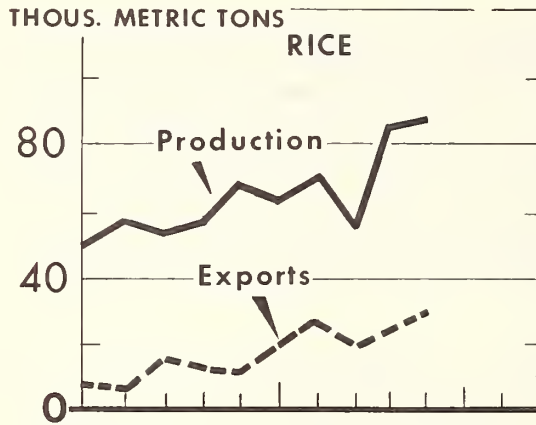
Period or year	Area	Production, rough rice (paddy)
	<u>1,000 acres</u>	<u>Million pounds</u>
Averages:		
1935-39.....	37	77.0
1940-44.....	35	80.7
1945-49.....	42	102.6
Annual:		
1950.....	44	111.2
1951.....	47	127.2
1952.....	49	119.3
1953.....	50	127.1
1954.....	55	147.0
1955.....	55	142.3
1956.....	62	157.0
1957.....	70	121.5
1958.....	77	187.5
1959.....	71	173.5

second crop following the severe drought in 1957. According to recent reports about 178 million pounds were produced in 1960, which, while above the 1959 output, is still below that of 1958. About three-fourths of the total output is produced on small and average-size farms and the rest on plantations. During the 1957 drought, the only area which apparently escaped trouble was the Wageningen project because of its irrigation facilities.



# SURINAM AGRICULTURAL COMMODITIES

## Production and Exports



U. S. DEPARTMENT OF AGRICULTURE

NEG. ERS 955-62 (3) ECONOMIC RESEARCH SERVICE

Figure 3



The Wageningen project located in Nickerie is the first mechanized rice cultivation attempt in Surinam (fig. 4). Financed by the Netherlands Government for colonists from abroad it was contemplated as a 25,000 acre rice farm. To date only 15,000 acres have been developed. Apart from any income that may accrue to the country from this project, there have been several beneficial results to Surinam. The project has helped agricultural development and national employment, and provided an opportunity for training of many persons.



Figure 4.--Mechanized rice culture in the Nickerie district.

Numerous varieties of rice are grown in Surinam. Rexoro, a popular variety, had to be discarded because of a serious attack of *Cercospora* disease. Only new Surinam varieties are now grown on the plantations, the most important being Dima, which was bred at the Government Experiment Station. All these varieties are of the long-grain type and are of very good quality. Skrivimankoti, which is of lower quality, is the variety most widely grown by the small farmers.

Experiments with the dry cultivation of crops in rotation with rice during the secondary rainy season were not successful. Such crops as soybeans, corn, and sorghum were tried. Often after a good start the crop was destroyed by excess of water as the impermeability of the soil hampered drainage. However, *Crotalaria quinquefolia* grows well as a green manure on a limited scale.

The sowing periods for rice are from March 25 to May 5 for the major crop and from October 15 to November 5 for the second crop. The growing period of the rice is about 142 days from time of sowing. On the plantations over 20 percent of the area is sown in second crops.

Diseases causing serious losses to susceptible varieties are Helminthosporium, Cercospora and Piricularia. The breeding station continues its search for new and better varieties as disease-resistant types become susceptible to new strains of fungus. Hoja Blanca was reported in two areas in Nickerie and steps have been taken to breed disease-resistant types.

Rice is milled in many small plants, in a few larger mills, and in the modern mill at Wageningen. The quality of milled rice is subject to control by the Government, but rough rice is not controlled unless exported. Price guarantees are provided by the Government for rough rice.

The high quality long-grain rice from the Wageningen project finds a ready market in the Netherlands, which usually receives roughly 70 percent of the total milled rice exported. But in 1959 it took only 7 percent while Germany took 81 percent of the milled rice exports. The French and Netherlands Antilles have been steady markets for rice since 1953. In 1958 and 1959 large shipments of rough rice were made to Venezuela and late in 1960 relatively large shipments of milled rice were made to Cuba and to Europe. Surinam is having difficulty in moving its rice surplus into world markets. In the Caribbean the product encounters competition from the United States and elsewhere.

Surpluses of small-farm rice, which is of lower and uneven quality, are less certain of reliable markets. Therefore the Government is giving serious attention to the export of a better-quality product from the small growers. A price support program is in effect under which the government pays farmers an average of 2.18 U.S. cents per pound for unmarketable rough rice which meets minimum quality standards--not exceeding 1 percent yellow grains.

Due to a shortage of rice in the local market, and a severe drought in 1957, the Government was obliged to import rice in three consecutive years, 1956, 1957, and 1958. During these years, there was difficulty in allocation of the crop between export quotas and domestic needs. With a view to solving this problem, the Government established a new rice policy in September 1958. Under this policy the local rice supply is guaranteed by prohibiting the export of certain qualities of rice, and by the import of consumption rice and stock building by the government. Regulations governing the quality of rice for export are based mainly on a percentage of broken kernels and discoloration of kernels. Licenses are required for the export of rough and hulled rice, and are issued by the Director of Economic Affairs only to exporters who are on the list of certified rice exporters. To be listed the exporters must meet certain requirements.

Citrus.--Citrus production is an important factor in Surinam's agriculture. In recent years the Government has been encouraging expansion of citrus growing, and production has increased. In 1959 orange production exceeded that of 1950 by 10 percent and grapefruit output was almost doubled in the same period. Production will continue to increase because the planting of oranges and grapefruit is continuing, and young acreage has still to come into production. About half the orange crop and the bulk of the grapefruit crop are produced by plantations.



The grapefruit plantings are mostly Marsh seedless, and the oranges are chiefly Kwatta 202, an early variety, good quality fruit originating in Surinam on the Kwatta estate. Lemons are of the Woglum variety, introduced from Trinidad but no longer found there.

Citrus is grown on the low coastal plain principally in the districts of Suriname, Commewijne, and Saramacca. Orchards are planted within 6 feet of the constant water table, and drainage is a serious problem. The citrus trees are budded on sour orange rootstock and are generally free from disease.

The fruit is harvested and ready for export from June to September when the world's supply of citrus fruit is at its lowest. Most of the export fruit is packed in the Central Packing Plant, which was built by the Government and given to the Surinam Citrus Central, which is a semi-governmental operating body composed of citrus growers (fig. 5). About 75 percent of the fruit arrives by water and the remainder by truck. In 1959, 51 percent of the orange crop was exported, 79 percent of the grapefruit crop, and 2 percent of the other citrus crops.



Figure 5.--Grading grapefruit at the Citrus Central (packing house).

All oranges and grapefruit for export are subsidized by the Government in the form of a guaranteed return to the grower of \$2.56 per box. This guarantee price system, which came into force in 1956, has resulted in better maintenance of citrus groves and an increase of exports. As in the case of cacao and coffee, plantation production is exported and small-farm production is used locally.

The bulk of Surinam's citrus exports goes to the Netherlands. According to a Netherlands business man, who also owns a citrus plantation in Surinam, the Surinam oranges are liked for their abundance of juice, but, although the grapefruit is also very juicy, a market for it has not yet been developed in the Netherlands and nearly all is for re-export. A large part of the grapefruit crop entered the London market for the first time in 1960. Consideration is being given to the establishment of a frozen orange juice concentrate plant in Surinam to be established by U.S. interests in cooperation with the Surinam Government. This development may stimulate citrus planting, since an outlet for the fruit, either fresh or processed, seems more assured than in the immediate past.

Coffee.--Introduced as an estate crop early in the 18th century, coffee became one of the staple products. From Surinam its cultivation spread to Brazil, Venezuela, Colombia, Central America, and the West Indies. During the 19th century a decline occurred in Surinam due largely to the scarcity of labor after the emancipation of the slaves, and also to competition from other areas. In the 20th century the planters decided to plant coffee once again, and high prices for the commodity hastened their turning from the declining cacao and banana industries. Much of the planting was done on lands formerly in cacao which succumbed to witches' broom disease. Production increased to 9.6 million pounds by 1935, but low coffee prices and the lack of a market caused the industry to decline. World War II eliminated the principal market in the Netherlands. Production has fluctuated since 1950 but has not much exceeded 1 million pounds (table 4).

Lowland Liberian coffee, Coffea liberica, is the principal variety grown in Surinam where bearing commences in the third year and full production is reached in the eighth year. Small-farm production is mainly used for local consumption. The plantations produce over 90 percent of the coffee in the two districts of Suriname and Commewijne, and export it principally to Europe. Norway has taken a large part of the coffee in the past, but in 1960 it imported lower-priced coffee from other sources. The Government is assisting in seeking new markets, and is considering making provision for payments to exporters to cover the difference between the asking price and the world market price of coffee.

Coffee is the third highest money earner for Surinam in the agricultural industry, being exceeded by rice and citrus.

Cacao.--Prior to 1901 the cacao crop was second only to sugar. It was wiped out principally by witches' broom disease which appeared before the turn of the century. From Surinam this disease spread to other important cacao producing countries of South America except Brazil. During 1926 a long drought destroyed the remaining trees, many of which were extremely old.

Cacao requires only a small number of laborers to maintain the fields in good condition and is considered an ideal crop for this country where the shortage of field labor has always been acute. In 1947, the Government, through the Department of Agriculture, decided to reintroduce large-scale cacao production in Surinam. The factors influencing this decision were the high price of cacao in the world market, and the availability of old plantations that were already empoldered and drained. Plant material with some



resistance to the witches' broom disease was obtained from the Trinidad Agricultural Department for the purpose of establishing the industry.

Table 4.--Coffee and cacao: Surinam production and exports, average 1945-49, annual 1950-59

Period or year	Coffee		Cacao	
	Production	Exports	Production	Exports
	1,000 lb.	1,000 lb.	1,000 lb.	1,000 lb.
Average 1945-49...	844	1,157	68	insig.
1950.....	1,252	666	126	insig.
1951.....	353	853	187	11
1952.....	708	677	256	insig.
1953.....	503	573	214	49
1954.....	992	742	192	99
1955.....	1,043	800	287	84
1956.....	600	580	298	159
1957.....	897	637	351	370
1958.....	317	487	291	247
1959.....	1,102	873	540	492

Farmers were encouraged to plant cacao by a variety of inducements. In addition, the Government sponsored experimental fields. Plantings are concentrated in three districts: Suriname, Commewijne, and Saramacca.

The young cacao trees are shaded by banana plants while shade trees are developing (fig. 6). About two-thirds of the area in cacao is planted by plantations and the rest by small farmers. The former export their output and the latter supply the local market.

The production and export of cacao are increasing by the coming into production of the young trees. Exports in 1959 of 492,000 pounds almost doubled those in 1958. Generally all of Surinam's cacao exports go to the Netherlands. In 1958 there was a small shipment to the United States.

Sugar.--Once the principal commodity in Surinam, sugar is now produced on only two plantations--Waterloo plantation in the district of Nickerie, and the Marienburg plantation in the Commewijne district. The cane is harvested from July to November.

In 1959, about 3,274 acres of sugarcane were harvested, giving a total sugar yield of 10,000 short tons. Production has been increasing since 1950 and was reported to be over 12,000 tons in 1960, but it is still below the prewar average of 16,000 tons. The fall of sugar is the result of World War II shipping shortages and postwar labor shortages.

The Marienburg Sugar Enterprise (owned by a large Netherlands firm, the Netherlands Trading Company) is the only one that took steps to meet present



Figure 6.--Young cacao trees shaded by banana plants.

conditions. Tractors were introduced to help in cultivating the land but it was difficult to use such equipment on the plantation which was entirely criss-crossed with large drainage ditches, as it would necessitate building numerous bridges to get the tractors across from one field to another. Machines were introduced for hauling cane from the fields to the mill.

Because of Marienburg's large labor force in prewar years--3,000 resident laborers and 2,000 additional during peak harvest seasons--the Government decided to protect the industry by a tariff. The present labor force is about 1,500 resident and 1,500 additional laborers, and locally grown sugar is still protected. A refinery erected in 1958 produces a fine quality white sugar.

In an effort to keep workers on the land, Marienburg has a program of housing, recreation, and medical care. In order to reduce costs and increase productivity, the plantation has been mechanizing its operations, principally in deforestation, ditching, and plowing. Crop diversification was also started to utilize the permanent labor force during slack seasons.

Exports of sugar, amounting to almost 2,100 tons in 1959, go mostly to the Netherlands.

Bananas and plantains.--The Ten Year Development Plan calls for a large increase in production of bananas, particularly by small farmers. Difficult problems are encountered in getting a high quality product in adequate quantity ready for shipment. Uncertainties of markets and shipping face producers. Consequently the Government is considering assisting producers by the establishment of a central organization for the culture, marketing and transport of bananas. Consideration is being given to the possibility of sales to the Netherlands and the United States.



A banana industry started in 1906 failed due to the ravages of Panama disease (*Fusarium*). In 1958 a local agricultural enterprise was interested in developing export markets for plantains and bananas in the United States, the Netherlands, and the Netherlands Antilles. The banana varieties raised were the disease-susceptible Gros Michel and the more resistant Lacatan variety. However, the planned increase in banana production in Nickerie was curtailed due to sea transportation difficulties. A sand bar outside Nickerie prevented banana boats from entering for dockside loading.

The 1959 production of bananas and plantains was higher than in the 4 previous years and increased again in 1960, according to estimates. Since 1954 British Guiana has been the principal market for plantains. Small shipments of bananas were made to the Netherlands in 1958 and 1959.

Bananas and plantains are grown in all the districts by small farmers for local consumption and form an important part of the local food supply.

Coconuts.--The coconut palm is one of the important crops of Surinam. It is grown on small farms chiefly by Creoles and is located on the sand ridges. The plant bears 7 to 8 years after planting and may continue to produce for 60 years or more. Acreage and production dropped between 1950 and 1954 but rose again by 1958 to 11.8 million nuts from 4,000 acres. Production fell in 1959 to 6 million nuts.

Coronie is the center of the coconut industry and coconut oil is its major commercial product. A government-financed coconut oil factory established in Coronie in 1957 has been turned over to the coconut growers' cooperative on an easy-payment basis. The plant has an annual capacity of 105,700 gallons and produced at a 60-percent level in 1958. Peanuts grown elsewhere are sent to this mill for oil extraction. In order to protect this new plant, in part, the Government has established an import quota of 422,700 gallons of vegetable oil per year. Maximum prices are also set for retail sales of coconut oil as a consumer protection as well as to insure a profit for local producers of the oil.

An average of 749,000 coconuts was exported between 1955 and 1959, mostly to the Netherlands, which in turn supplies Surinam with most of its imports of coconut oil and other vegetable oils. In 1959 the United States supplied Surinam with over 8,000 gallons of soybean oil.

The coconut palm yields many diversified products apart from the nuts used for oil extraction. The "meat" is eaten as a food; the "milk" is used as a drink; the trunk is used for wood for homes and tools; the leaves for thatching roofs and basket making; the shell for utensils; and the fiber of the husk or outer covering (coir) is used as a coarse rope-making material.

When satisfactory production methods have been worked out at the coir fiber pilot plant at Coronie and the operation is proved to be economically sound, consideration will be given to the erection of a larger factory to operate on a commercial basis.

Interest has been expressed in the Netherlands in obtaining a good quality spinning coir at a sufficiently attractive price. Annual requirements of coir

fiber are over 2,200 short tons.

### Domestic Crops

Crops grown chiefly by small farmers for local consumption include corn, peanuts, soybeans, other pulses, sweet potatoes, cassava, other tubers, tomatoes, cabbage, and other vegetables and fruits. The production of vegetables has remained relatively stable in recent years while the demand has increased. The gap has been closed by imports of fresh, frozen and canned vegetables. About 60,000 pineapples were produced in 1959, which is far below the 1955 output. Judging by volume--2,570 short tons in 1959--cassava is the most important of the root and vegetable crops, followed by corn with a yield of 1,137 tons the same year.

Pulses.--The annual consumption of pulses in Surinam is valued at approximately \$324,000 of which two-thirds is imported. In order to increase production and reduce imports, the Department of Agriculture has started a selection program which will include imported varieties and strains.

The method of planting pulses on ridges has shown good promise in tests, but the method has to be adapted to the agricultural conditions of the small farmer. If this method of planting pulses should be successfully adopted by the majority of rice farmers, production could be increased far in excess of local demand. A Spanish bunch type of peanut from Indonesia is being replaced by Matjan, also of the Spanish type, which has many of the characteristics desired and is not very susceptible to the leaf disease *Cercospora*.

Onions.--Fairly successful experiments by the Department of Agriculture have proved that onions can be cultivated in some parts of Coronie and a small acreage could presumably supply the Surinam market. While transportation and storage of the onions will certainly be problems, this effort would appear well worthwhile. Total imports of onions in 1959 were valued at approximately \$82,000, the bulk coming from the Netherlands.

Rubber.--The AID Agricultural Division continues to render assistance in connection with the introduction of planting material of Hevea brasiliensis offering potential crop diversification possibilities. The major effort is in the establishment of a clonal material which will be used in budding and grafting processes in connection with the establishment of a pilot rubber plantation in the area around the Brokopondo Hydroelectric development.

Balata, from the tree Manilkara bidentata, is a type of rubber with commercial uses. Exploitation of this forest product rises and falls in Surinam. Following a 3-year decline the volume advanced sharply in 1960 to 370,000 pounds. The recovery was attributable to a higher price and to Operation Grasshopper, the name given to the aerial geological survey which requires the establishment of seven airstrips in the interior of the country. This operation has not only opened up vast new forest areas in the interior for exploitation, but also provided an airlift for moving the product to Paramaribo at lower cost than by traditional surface means.



## Livestock and Products

In spite of the handicaps encountered by the livestock industry of Surinam, there has been a steady increase in the animal population. The livestock raised include cattle, horses, mules and donkeys, pigs, goats, sheep, and poultry. Every farmer owns a few cows and smaller animals. Cattle in 1959 totaled 35,000, 59 percent higher than the 22,000 existing in 1939 (table 5). All the livestock increased between 1957 and 1959 with the exception of the horses, mules, and donkeys.

Table 5.-- Surinam livestock population, annual 1957-59

Kind	1957	1958	1959
	: 1,000	1,000	1,000
	: head	head	head
Milk cows.....	14.2	14.2	14.4
Calves.....	8.7	9.0	15.2
Steer and oxen.....	11.3	9.5	5.4
Water buffaloes.....	.15	.12	.20
Horses.....	.55	.56	.48
Mules and donkeys.....	.56	.55	.50
Pigs.....	5.2	4.7	6.0
Goats.....	8.7	8.9	11.1
Sheep.....	1.9	2.1	3.2
Chickens.....	225.1	250.0	260.9
Other fowl.....	25.1	22.2	29.1

Suriname District is the largest producer of all kinds of livestock, followed by Commewijne and Nickerie. Coronie is the second largest producer of pigs. Almost all the cattle are raised in the coastal areas. The introduction of various grasses for testing on fallow rice lands continue. These include Pangola, molasses, and Guatemala grasses.

Attempts to establish extensive cattle ranching on the intermediate savannas have failed owing to the fact that the grasses of natural pastures have proved too fibrous. However, in 1959, the president of the Foundation for Scientific Research in Surinam expressed the opinion that the savannas near the Brazilian border could be used for a cattle-breeding scheme similar to that carried out in the Rupununi area in British Guiana.

Under the Government's cattle improvement program Zebu bulls have been imported, and more recently Santa Gertrudis bulls, to improve the beef cattle. Zwartbont (Holstein Friesian) cattle have been introduced as a result of the use of artificial insemination techniques. It is not intended to have more than 50 percent Zwartbont blood in the dairy stock.

The number of animals slaughtered annually fluctuates between 4,000 and 5,000 for cattle, 3,000 and 4,000 for pigs, and 300 and 400 for sheep and goats.

Most of the cattle are sent to the government abattoir in Paramaribo for slaughtering. New Nickerie and Coronie are both to have government slaughterhouses. The average weight of the cattle has increased, thus tending to lessen the need for greater meat imports as local demand rises with population growth. However, the market for meat is small as the Javanese and East Indians, who make up half the population, eat very little of it in their diet. To make up the deficiency in protein in the diet of the people, about 1.3 million pounds of salted meat and 1.5 million pounds of salted fish are imported annually. The value of these imports is about \$430,000 and \$260,000, respectively.

There is only one modern dairy farm in Surinam, at Moengo, operated by the Surinam Bauxite Company. The Government has constructed a milk processing plant at van Idsingastraat on the outskirts of Paramaribo. This plant is increasing the supply of milk for consumption. The normal output of the new plant is estimated to be 2,640 gallons per day with a maximum capacity of 4,400 gallons.

A dairy expert was appointed by the Government to set up and operate a milk marketing board, develop a milk collecting service and distribution system, and later on start the production of cream and cheese. Once under operation it is planned that the farmers will run the dairy as a cooperative venture.

The average dairy and beef animal gets most of its nourishment from grass. The local Agriculture Department would like to encourage supplemental feeding of cattle sometime in the near future. Imported feed in 1959 was valued at \$144,000. There is a local cattle and poultry feed mill which produces about 1,500 short tons annually.

#### TRADE IN AGRICULTURAL PRODUCTS

The country usually has a trade deficit which is offset by capital imports or loan funds from the Netherlands. Imports and exports showed a marked rise in value in 1959, setting a new record, but this was exceeded in 1960 when imports amounted to more than \$54 million for the first time.

Surinam's location is off the main trade routes, hence its steamship and air services have not been frequent and transportation costs have been high, but in 1960 there was a great improvement in these facilities. In spite of the export record achieved, the Government is seeking ways by which the base of exports can be broadened and the value increased.

#### Exports and Imports

Agricultural exports represent about 10 percent of total exports, the non-agricultural being accounted for chiefly by bauxite, 79 percent, and forest products, 8 percent (table 6).

Table 6.-- Principal Surinam agricultural exports, quantity and value, 1957-59

Commodity	Unit	1957		1958		1959	
		Quantity	Value	Quantity	Value	Quantity	Value
Rice, milled.....	1,000 lb.	24,808	1,474	32,134	1,989	37,897	1,000
Coffee.....	1,000 lb.	637	374	487	279	851	dollars 2,297
Oranges 1/.....	1,000 boxes	58	171	87	244	138	428
Grapefruit 2/.....	1,000 boxes	59	180	96	219	120	356
Other citrus 3/.....	1,000 boxes	3.2	8	1.3	3	0.4	2
Cacao.....	1,000 lb.	370	100	247	93	492	165
Sugar.....	short tons	1,834	186	661	65	2,099	199
Coconuts.....	1,000	1,109	56	912	43	288	16
Other agricultural.....	---	---	116	---	117	---	125
Total agricultural exports:	---	---	2,665	---	3,052	---	4,058
Balata.....	1,000 lb.	414	204	342	150	240	154
Lumber simply worked.....	---	---	882	---	705	---	911
Other forest products.....	---	---	2,272	---	2,321	---	2,312
Bauxite.....	---	---	28,131	---	26,428	---	32,814
Other exports.....	---	---	275	---	376	---	1,504
Total exports.....	---	---	34,429	---	33,032	---	41,753
Agricultural exports as	:	:	Percent	:	Percent	:	Percent
percent of total exports...	:	:	7.7	:	9.2	:	9.7

1/ 216 oranges to a box.

2/ 100 grapefruit to a box.

3/ 200 citrus (limes and citrons) to a box.



Rice amounts to more than half the value of all agricultural exports. Next in order of value are coffee, oranges, grapefruit, sugar, and cacao. Exports of all the commodities have increased over the two previous years with the exception of coconuts and "other citrus" (limes and citrons). Balata (rubber) exports which go mostly to the United States have been dwindling since 1956, but rose sharply in 1960, induced in part by a higher price.

The Netherlands is the principal market for Surinam's agricultural products, taking over 58 percent. Other important markets are the Caribbean Islands. However, in 1959 about 31 percent of total rice exports went to Venezuela and 56 percent to West Germany. Venezuela takes rough rice and West Germany milled rice.

Agricultural imports amount to over 14 percent of total imports and are mostly food items, unmanufactured tobacco, and animal feeds (table 7). Wheat flour, meat, dairy products, coconut oil and margarine are the principal imports. But Surinam also imports large quantities of pulses and potatoes and over one-fourth its consumption of fresh vegetables. The Netherlands and the United States are the two major suppliers of Surinam's agricultural needs.

### Trade With the United States

The United States is the principal market for commodities from Surinam but these are mainly non-agricultural items such as bauxite, balata, other forest products, and shrimp (table 8). According to Surinam's statistics there were no agricultural exports to the United States in 1959. However, the United States receives, via Surinam, such products as cacao, coffee, and carnauba wax, valued at over \$1 million.

Surinam buys most of its wheat flour, salted meat, unmanufactured tobacco, and mixed feeds from the United States. The imported agricultural products, valued at almost \$3 million in 1959, and consisting principally of food items, amounted to 43 percent of Surinam's total agricultural imports. Food imports from the United States may be expected to increase in the short run with population increase, and in the long run with the increase in income from the expected development of the economy.

### Government Policy for Trade

The favorable foreign exchange reserve position has enabled Surinam to follow a relatively liberal foreign trade policy. Government actions taken at the end of 1958 and early in 1959 were in the direction of further liberalization, although tariff revisions in January 1959 were generally upwards. The tariff increases resulted partly from the need for increased revenues and partly from the necessity of continuing protection to domestic industries as some quantitative restrictions were removed or liberalized in keeping with Surinam's obligations under GATT (General Agreement on Tariffs and Trade).

There are import quotas on wheat flour, edible oils, and cigarettes of "American formula." Imports of only a few items are prohibited; these include macaroni and vermicelli, fresh white cabbage, wood and wood products. Quantitative restrictions on sugar have been removed for imports from members

Table 7.--Principal Surinam agricultural imports, quantity and value, 1957-59

Commodity	1957		1958		1959	
	Quantity	Value	Quantity	Value	Quantity	Value
	lb.	dollars	lb.	dollars	lb.	dollars
Meat, salted.....	1,000	1,000	1,000	1,000	1,000	1,000
Other meat and products.....	1,261	351	1,329	434	1,433	403
Milk, condensed and evaporated...	--	84	--	380	--	482
Powdered milk.....	685	109	771	117	825	120
Butter.....	194	144	123	46	657	330
Cheese.....	419	252	553	236	437	239
Rice, milled.....	551	207	686	207	642	228
Wheat flour.....	2,222	181	4,478	314	--	--
Other grains and preparations...	17,045	1,000	16,792	980	18,120	1,032
Fruit, fresh and dried.....	--	315	--	332	--	350
Potatoes.....	--	83	--	93	--	94
Pulses.....	3,600	141	3,309	142	3,576	158
Onions.....	2,123	200	2,410	223	2,169	239
Cacao powder.....	1,451	83	1,532	83	1,545	82
Chocolate by-products.....	152	82	158	95	203	97
Tea.....	115	65	130	77	134	89
Margarine.....	207	182	192	154	223	181
Coconut oil.....	1,184	265	1,237	273	1,367	293
Tobacco, unmanufactured.....	4,100	703	2,635	491	1,913	421
Prepared feed.....	143	118	126	108	157	149
Other agricultural products.....	1,764	107	2,444	155	2,269	144
Total agricultural imports.....	--	<u>1,032</u>	--	<u>937</u>	--	<u>1,318</u>
	--	5,704	--	5,877	--	6,449
Nonagricultural imports.....	--	<u>33,751</u>	--	<u>32,686</u>	--	<u>39,395</u>
Total imports.....	--	39,455	--	38,563	--	45,844
Agricultural imports as percent of total imports.....		<u>Percent</u> 14.5		<u>Percent</u> 15.2		<u>Percent</u> 14.1

Table 8.--Surinam's trade: Agricultural and nonagricultural commodities, and U.S. share, 1959

Commodity	Total exports	Exports to the United States	
<u>Exports</u>	1,000	1,000	
	<u>dollars</u>	<u>dollars</u>	<u>Percent</u>
Agricultural.....	4,058	---	---
Non-agricultural:			
Balata.....	154	139	90.2
Wood simply worked.....	911	40	4.4
Fish (shrimp).....	277	252	91.0
Bauxite.....	32,814	30,793	93.8
Other non-agricultural.....	<u>3,539</u>	<u>746</u>	<u>---</u>
Total exports.....	41,753	31,970	76.6
	<u>Total</u>	<u>Imports from</u>	
	<u>imports</u>	<u>the United States</u>	
<u>Imports</u>	1,000	1,000	
	<u>dollars</u>	<u>dollars</u>	<u>Percent</u>
Agricultural:			
Wheat flour.....	1,032	904	87.6
Other grains and preparations.....	350	117	33.4
Meat, salted.....	403	392	97.2
Other meat and products.....	482	97	20.1
Baby chicks.....	31	26	84.0
Pulses.....	239	123	51.5
Feeds and fodders.....	202	190	94.0
Tobacco, unmanufactured.....	149	119	79.9
Margarine.....	293	67	22.9
Other vegetable oils.....	736	19	2.6
Fruit, fresh or dried.....	94	50	53.2
Fruit and vegetable preparations..	286	134	46.9
Milk, dried.....	330	273	82.7
Other.....	<u>1,822</u>	<u>291</u>	<u>.5</u>
Total agricultural.....	6,449	2,802	43.4
Non-agricultural.....	<u>39,395</u>	<u>13,952</u>	<u>35.4</u>
Total imports.....	45,844	16,754	36.5

of the International Sugar Agreement. Import licenses are required but are granted upon application. Import duties on sugar were increased.



In March 1959 the Government fixed the value of the Surinam dollar in relation to the U.S. dollar. Previously it had been fixed equally in relation to the dollar, pound sterling, and Dutch guilder. The change was made to ensure a stable Surinam florin-U.S. dollar rate of exchange in view of the fact that the greater part of Surinam's foreign exchange earnings is in dollars.

#### LONG RANGE OUTLOOK FOR AGRICULTURE

Agricultural production is expected to rise over the next few years as a result of work being done under the Ten Year Development Plan. But in the long range, increased production will depend on the agricultural training provided by the Government in vocational schools for future farmers, and for technicians in farm management, extension, credit, marketing, applied research and cooperatives, so that the farmers may be helped to establish improved agricultural and marketing practices.

The livestock population is expected to expand gradually. And as refrigeration facilities improve in the next decade the ready supply of fresh meat will tend to increase and meat consumption may also be expected to rise.

The coastal land is limited and reclamation is costly. Recently attention is being turned south in the direction of the vast virgin forested lands with scattered savannas and the hills beyond. Following the aerial mapping of Surinam and certain ground studies, an aero-magnetic survey of several selected areas is now under way in the hope that commercially exploitable mineral deposits will be found. To assist this project, a grant of \$750,000 has been made from the Special Fund of the United Nations. The entire undertaking--dubbed Operation Grasshopper--includes the construction of a series of airstrips at selected locations. In the course of this quest for minerals the interior of the country will be opened up to new settlers and new industries. Contributing to this are the access roads built by the Forest Service for the lumbering industry and the disease-eradication program of the Cooperative Public Health Service. As the interior becomes accessible it is expected that there will be growing interest in this area for settlement, the development of agriculture, and expansion of the livestock industry.

Development of the economy also will tend to provide purchasing power for additional goods and thus a bigger market for agricultural products. This, in turn, will stimulate greater production of some of these products and greater imports of others.

The Netherlands' request for Surinam's association in the European Common Market has been approved and parliamentary ratification is expected within the next year. When this is effected it may both enlarge the market for such crops as citrus, high quality rice, and bananas and give added stimulus to the production of these crops.

Surinam presents an exciting challenge to those who are keenly interested in its future development. It is a challenge because of the many obstacles to be overcome. It is exciting because the greater part of the country is yet to be explored.



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