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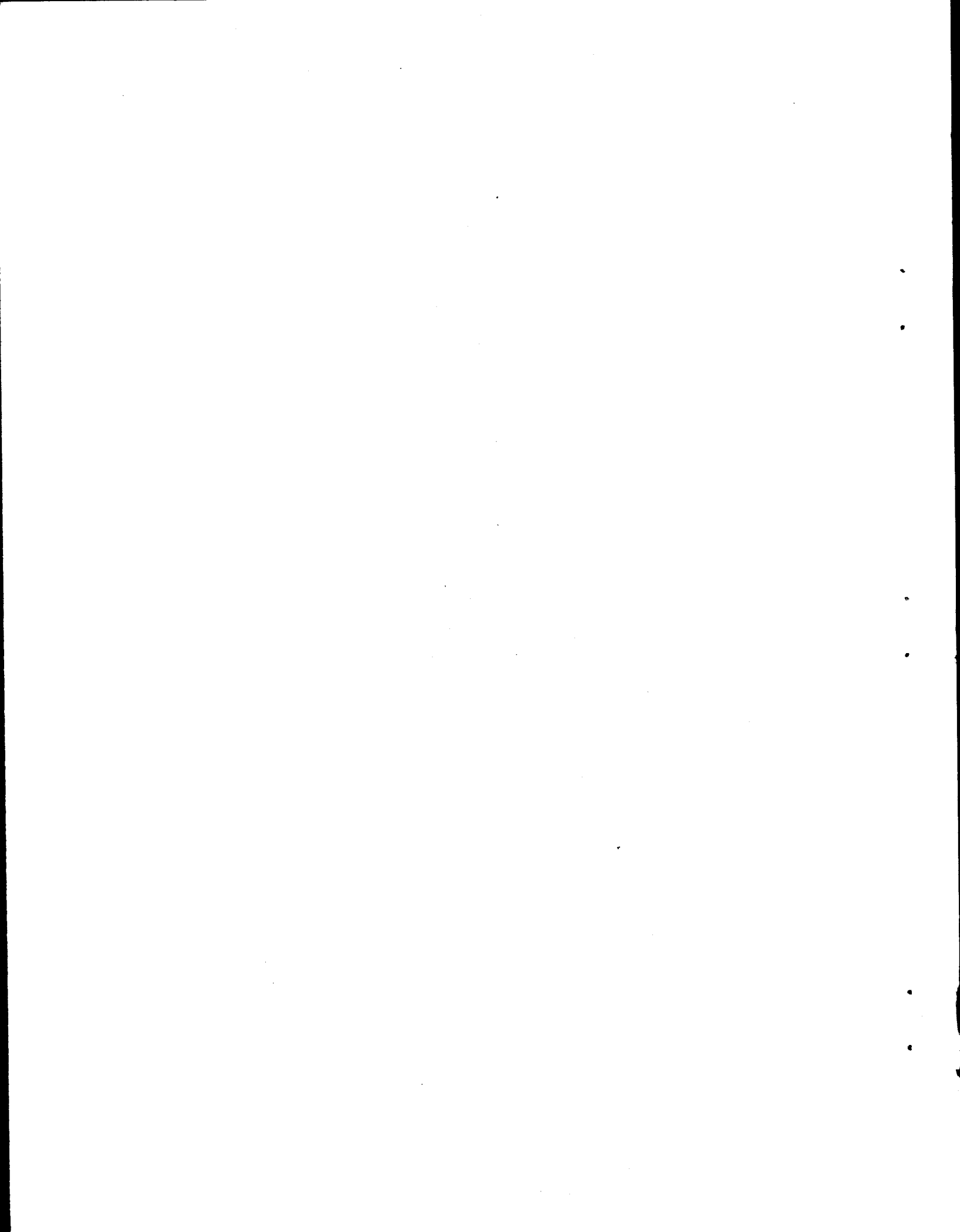
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ANNEX D

AGRICULTURAL DEVELOPMENT IN CUBA

<u>INDEX</u>	Page
INTRODUCTION	1
SECTION 1. PRINCIPAL CHARACTERISTICS OF AGRICULTURE, SINCE 1928	10
SECTION 2. DEVELOPMENT OF PRODUCTION FOR THE HOME MARKET SINCE 1928	17
SECTION 3. PRESENT SITUATION OF AGRICULTURE IN CUBA	25



ANNEX D. AGRICULTURAL DEVELOPMENT IN CUBA

INTRODUCTION

Agriculture has traditionally been Cuba's most important economic activity. In 1919, 48 per cent 1/ of the gainfully employed population in that country was engaged therein and 24 years later, the proportion was still above 40 per cent. 2/ Since colonial times, agricultural products have constituted the principal group of exports, their value having fluctuated during the present century between a maximum of 96.0 per cent and a minimum of 86.9 per cent. A further indication of the relative importance of agriculture in the economic structure of the country may be inferred from the fact that it contributed approximately one-third of the national income in 1945.

The favourable ecological conditions for sugar-cane 3/ production and to a lesser degree, for tobacco, from an early date determine Cuba's specialization in their cultivation. Despite the restrictions imposed

1/ Census of 1919

2/ Census of 1943, Republic of Cuba, published in Havana, page 1071.

3/ Julian Alienes, in his "Essay on the Economics of Sugar-Cane in Cuba" ("Trimestre Económico", published by Fondo de Cultura Económica", Mexico July-September 1949, page 440 and following) points out "that the prospects of Cuban production would be greater than in other countries even if there were not an abundance of good and relatively cheap soil for its cultivation, because one would only encounter the problem of the marginal planter when Cuba attained high levels of total production of cane". This he attributes "(1) to the special quality of Cuba's soil, (2) ease of preparation of the ~~soils for the~~

by Spain, production of the former exceeded a million tons in 1894. This greater productive efficiency divided the agriculture of the country into two well-defined branches to supply (a) the export market and (b) for home market consumption, both of which sectors responded to different stimuli in their evolution.

The existing information would seem to indicate that progress during the past century took place at different rates, agricultural production for the domestic market having developed more slowly than that for the export market. 1/

(Continuation of footnote from preceding page)

cultivation of cane, (3) the advantage of sowing time and, lastly, (4) the climate". In regard to this latter item the writer points out that: "The long rainy season and high temperatures which occur from May to November contribute to the luxuriant growth of the stalk and leaves; the short dry season that prevails for the remainder of the year, ripens the cane, increasing its sugar content and permitting moreover the cutting, loading and transport for grinding from the fields to the sugar centres, without immediate fermentation, which in the rainy season and high temperature would take place in a few hours". He explains that the sowing advantage is the result of a combination of other factors which give rise to Cuba's superiority over other producers. This consists in the fact that the sowing of the cane, - a very expensive process, equivalent to 20% or more of the total cost of cane production, - "has a minimum incidence here, since Cuba reaps more crops per sowing than any of its competitors. The measure in which this is achieved simultaneously reduces the actual cost of the sowing, which must not be considered in its absolute quantity, but only once, and in terms of the yield of each harvest and the number of crops obtainable from each sowing".

1/ According to H. E. Friedlander, while the value of production of sugar and its derivatives increased from 30.6 million pesos in 1846 to 62.1 millions in 1861, that of the total agricultural production (excluding tobacco) increased from 22 million to 25.4 million pesos in the same period. "Apuntes históricos sobre el ganado vacuno en Cuba" (Historical notes on cattle-raising in Cuba) by Humberto Castellanos, Second National Congress of Agronomy and Sugar Engineering, Havana, 1948, page 67.

About the beginning of the present century domestic agricultural production was already insufficient to supply the requirements of Cuba's population, making it necessary for that country to import even such easily grown crops as coffee, maize, beans, etc. In the period 1905-1909 the value of these imports represented more than one-third of the total value of Cuban imports.

With the establishment of the Republic, several domestic restrictions were abolished, among them being the export tax and the legislative limitations on free trade which adversely had affected the sugar industry during the Colonial period. Furthermore, conditions abroad became more favourable to the Cuban sugar industry, as for instance, the concession by the United States to that country of preferential customs treatment embodied in the reciprocity agreement signed in 1902.

These changes, together with the rapid increase of national and foreign investments in the sugar industry and those natural advantages which have already been mentioned, accentuated even more the country's latent tendency to a one-crop economy, competing in a free world market. It is therefore not surprising that the development of agriculture from this date until the beginning of the depression depended fundamentally, as will be shown later, on the expansion of sugar-cane cultivation and to a lesser degree of tobacco. Conclusive evidence of the rapid development of this crop can be drawn from the fact that sugar production increased from the 1905-1909 average of 1.2 million tons to the 1925-29 average of 4.8 million tons. ^{1/} That is to say, 381.6 per

^{1/} Anuario Azucarero de Cuba, 1947, Cuba Económica y Financiera. Havana 1948, page 98.

cent which when compared with increase in population represents a net increment of 215.6 per cent.

No data are available to trace with any certainty the growth obtaining during this period in agricultural production for the home market, but there are, nevertheless, other elements which justify the assertion that development in this branch was slower than that for export purposes.

As may be seen from Table 1, per capita imports of 18 food products remain practically at the same level between 1905 and 1919, increasing during the subsequent five-year period only to fall again between 1925-1929 to the level obtaining during the afore-mentioned fifteen years. At the same time, partial indices composed of articles produced in the country, or which could be produced there, rose continuously between the five-year periods 1905-1909 and 1920-1924, falling in the following five years. The discrepancy in the movement of the partial indices (approximately 50 per cent of the general index) and that of the latter, during the period 1915-1919 can be ascribed to the reduction of imports of cattle products, such as jerked beef, animal fats, etc.

The movement of these indices in the afore-mentioned period may be attributed to one of two causes: 1) that per capita demand and the structure of Cuban staple diet remained practically unaltered between 1905-1909 and 1920-1924, implying that total domestic production increased less than the population; or alternatively 2) that the per capita demand increased while the structure of the domestic staple diet remained basically unchanged, implying an expansion of domestic
/production

Table 1. Per capita quantum index of imports
for foodstuffs, by five-year periods

Base 1905-09 = 100

<u>Five-year averages</u>	<u>Total</u>	<u>Sub Index 1</u>	<u>Sub Index 2</u>
1905-09	100.0	100.0	100.0
1910-14	100.2	101.0	121.1
1915-19	99.6	105.1	125.8
1920-24	115.6	115.2	150.8
1925-29	98.6	99.7	116.9
1930-34	47.8	45.2	21.2
1935-39	41.8	52.1	4.8
1940-44	33.2	44.5	0.4
1945-48	53.5	56.0	28.0

Sources: Original data from the (Cuban) Foreign Trade Yearbooks and the Research Centre, Economic Commission for Latin America.

Note: Sub-index 1 includes six products: rice, beans, potatoes, coffee, corn and onions. Sub-index 2 includes fresh eggs, cheese, butter and condensed milk. The total includes the items indicated and eight additional ones which form approximately 90 per cent of the imports of food products of the country.

The formula $\frac{Q_n P_o}{Q_o P_n}$ has been used to determine the quantum indices of imports. To determine the population the formula

$$P(1919) = 2'91228 \cdot 00846t_i \cdot 0'00054 t_i^2 - 0.0000341t_i^3,$$

(1895-1943)

in which P represents the value of the function and t_i that of the variable time. (See "El Comercio" in "Economía Cubana" Julian Alienes, 1943 Census, Republic of Cuba, Havana 1943, p. 445).

equal or greater than that of the population but lower than the demand for foodstuffs. The second assumption would appear to be the more accurate since it is probable that real per capita income increased as a consequence of the increase in the volume of per capita production in the basic industry of the country. This fact coupled with the favourable movement of the terms of trade during this period, 1/and given the income inelasticity of demand for foodstuffs, it is probable that the former developed to a much smaller extent than the latter. If, as has already been indicated, domestic production increased less than the demand for foodstuffs, it may be assumed that the increase which took place in agricultural production for the domestic market was considerably less than that which took place in agriculture for export purposes.

Nevertheless, some products would appear to have developed far more intensely than total production as a whole. This applies to maize, per capita imports of which decreased from 29.8 kilos from 1910-14 to almost nothing between 1925-29. The increase in the amount of domestic maize carried by the railways, (the only organised means of transport at the time) rose from 4.5 thousand tons as an average during 1905-1909 to 27.4 thousand tons average 1920-1924, confirming the active development of production.

1/ If the per capita increase in the total amount of sugar production is weighted by the change which took place in its foreign purchasing power between the five-year periods 1905-1909 and 1920-1924, one obtains an increase of 218 per cent.

/on the other hand,

On the other hand, the cultivation of coffee seems to have remained even more stationary in view of the decrease in per capita consumption during this period. In 1905 the production of coffee had reached 17.1 thousand metric tons 1/ and imports equalled 11 thousand. In the period 1925-1929 production had not increased more than 10.4 per cent 2/ and imports equalled 8.8 thousand tons.

The slight development shown in agriculture intended for home consumption was principally determined by two factors: 1) the greater relative profitability of cane sugar production, and 2) the concentration of agricultural land in the hands of large sugar companies.

The basis for the soil advantages has been outlined above and they can be summarised by stating that given the price of sugar and other products consumed in the country and their respective costs of production the Cuban planter drew a greater net income from growing sugar-cane.

The second factor, that is to say, the concentration of land, arises from the development of the sugar industry itself. In order to increase sugar production to the level attained in the twenties it was necessary to expand greatly the average productive capacity of the sugar factories. In Cuba this increase "was accompanied by an intensive

1/ "El Café, Historia de su cultivo y explotación en Cuba", F. Pérez de la Riva, Havana 1944, page 214.

2/ Production figures taken from "The World's Coffee", International Institute of Agriculture, Rome, 1947, page 117.

movement toward the acquisition of the land adjacent to the sugar mill, in order to ensure supplies of raw material, that is sugar cane, at the lowest possible cost." 1/ From the available data, there were in existence in 1925-26 185 sugar mills, owning a total of 22,391 square kilometres of land (2293.1 thousand hectares) 2/. Cuba's total area being 111,000 square kilometres. In other words, 22.2 per cent of the national territory is owned by sugar mills. It is furthermore estimated that the total arable land in the country equals 3,844.6 thousand hectares 3/. Therefore, if we assume that the greater part of the land acquired by the sugar producers was arable, it becomes evident that 50.0 per cent of the country's total was in the hands of the sugar companies. However, this does not give an accurate idea of the land really controlled by the sugar interests since they also leased another 809.4 thousand hectares 4/. It can therefore be concluded that between 70 per cent and 75 per cent of the total arable land in Cuba is controlled either by the sugar companies or by private individuals and that in most cases it is used solely for the cultivation of sugar canes. No other crops were grown on the portion not used for the ~~planting~~ planting of sugar cane, since the company's whole surplus land is kept "in reserve in case of the depletion of the sugar cane fields and also for further increases of productive capacity". 5/

1/ "Azúcar y Población en las Antillas" (3rd Edition), by Ramiro Guerra y Sánchez, Havana 1944, page 91.

2/ Figures from National Statistical Commission (Cuba) quoted by Ramiro Guerra in "Azúcar y Población en las Antillas".

3/ "The Agriculture of Cuba", by P.G. Minnemen, Washington, 1942, page 16.

4/ P.G. Minnemen, opus cited, page 18.

5/ "Problemas de la Nueva Cuba" (2nd Edition) Foreign Policy Association, Havana 1935, page 295.

Prior to the beginning of the twenties there was no appreciable change in the factors which made Cuba a one-crop country, and which held back the development of agriculture for the domestic market. The increase in the United States customs' tariff for Cuban sugar in 1921-22 constituted the first change in the conditions which had prevailed until then. The effects of the measure became even more serious after 1925, as a result of the decline in the price of sugar in the United States market, and the measures taken by other countries restricting free trade in this product. In 1927 the Cuban government established a protectionist tariff to encourage domestic production of goods which so far had been imported by the country. It seems that the government's attitude was dictated by: 1) the reduction of the value of sugar production as a consequence of the reduction in the price of this product - between 1920 and 1925, the total value decreased from 999.9 million to 260.4 million Cuban pesos; 2) the appearance of seasonal unemployment in the country's basic industry caused by the virtual cessation in 1924 of the instalment of new equipment and the renovation of existing plant, which until then had absorbed a considerable percentage of labour during slack months; the year 1924 can be accepted as the date marking the end of the period of expansion in Cuba's sugar industry; 3) the protectionist policy adopted by other countries.

The government in its effort to increase domestic production and thus reduce imports and unemployment, raised a number of tariff barriers on articles easily produced in Cuba, of which those most affected by the imposition of tariff barriers were foodstuffs.

SECTION 1. PRINCIPAL CHARACTERISTICS OF AGRICULTURE SINCE 1928

1. In 1930 cultivated land totalled 1792.8 thousand hectares, that is to say 46.4 per cent of the country's arable land. Of this total 1248.6 thousand hectares were used for the growing of export products, the outstanding article of which was sugar cane. As may be seen from Table 2 the area planted with sugar cane was twice that utilized for the growing of products intended for the home market.

Table 2: Utilization of the Land in 1930

<u>Products</u>	<u>Surface Planted (1000s of hectares)</u>	<u>Percentage of the total surface planted</u>
For export:	1,248.6	69.6
Sugar cane	1,133.1	63.2
Tobacco	69.8	3.9
Pineapples	0.7	-
Others	45.0	2.5
For the home market:	544.2	30.4
Coffee	50.2	2.8
Rice	3.3	0.2
Others	490.7	27.4
Total	1,792.8	100.0

Note: The pineapple figures given are for 1929.

Sources: Agricultural statistics 1942. U.S. Department of Agriculture Washington, D.C. 1942, page 140; Memoria del Año 1945, Comisión Nacional de Propaganda y Defensa del Tabaco Habano, Habana, 1948, page 365; International Institute of Agriculture, op. cit., page 117; P.G. Minneman, op. cit., page 16, and dates supplied by the Ministerio de Agricultura.

2. Of the total of 1133.1 thousand hectares planted with sugar cane there were approximately 950 thousand hectares sown on land held by the

/sugar companies.

sugar companies. This meant that less than 36 per cent 1/ of the arable land held by them was utilized. The utilization of the remaining arable land was proportionately greater, since 544.2 thousand hectares, planted with crops intended for the home market which alone constitute 43.4 per cent thereof. The proportion rises to 58.2 per cent if 184.7 thousand hectares of sugar cane fields planted by independent growers are added to the aforesaid 544.2 thousand hectares.

There were two types of agricultural holdings in the country: the one specialising in a single crop, usually for the export market, and the other on which various products are grown to supply the home market. The first category includes cane, tobacco, banana, pineapple and coffee plantations, though the latter is not really grown for export purposes. Specialisation was more intensive on the property belonging to the sugar mills where cane was grown to the exclusion of all other crops. The same did not occur in the case of independent farmers, on whose estates it was not uncommon to find various food crops grown for the subsistence of the farmer and his family.

On these farms various food crops were grown simultaneously, among them rice, maize, yuca, beans, etc., and occasionally sugar cane or tobacco. As a rule, these estates were fairly small, hardly ever exceeding 27 hectares; according to the census of 1931, 58.5 per cent

1/ The estimate for the surface of company land is made on basis of the origin of the cane ground by the mills in 1931 according to data from "Problemas de la nueva Cuba" page 297; 83.7 per cent of the ground cane came from the mills' land, and the rest was supplied by independent producers. The total arable surface of the sugar mills including the leased land was more than 2,691.2 thousand hectares.

of the farms in Cuba were even smaller than the above-mentioned figure. As a result of the simultaneous cultivation of various products, and the reduced size of the farms, the average area planted for each crop was correspondingly small. Thus the average size of the paddy fields varies between 2.4 and 3.2 hectares, and the area allocated to the planting of maize or beans is not much greater.

Productivity per worker employed in agricultural labour is also low as compared with that of the industrial workers. This low productivity is attributable, more than anything else, to the reduced volume of real capital per man. With the exception of a few cases, simple tools were used for the cultivation of the land despite the fact that the topographical features of the country and characteristics of many crops were conducive to mechanization, as for instance in the maize, rice and potato crops.

The 1931 census data shows that real capital in agriculture was extremely small and that machinery in turn represented a very small portion thereof. This same source indicates that 1.98 pesos were invested in machinery and farm implements per hectare, which represents a mere 2.8 per cent of real capital. ^{1/} At the same period the corresponding figure in the United States was 8.28 pesos and 6.4 per cent respectively. ^{2/}

The country lacked agricultural credit facilities controlled by

^{1/} Real capital includes the value of the land, buildings and equipment, but not the value of the livestock.

^{2/} Statistical Abstract of the United States, 1933, United States Department of Commerce, Washington, 1933.

government institutions or semi-public corporations. That same fact led to the establishment of a credit system wherein the function fell upon commercial banks, local merchants, agents of industrial establishments, and other intermediaries. By the very nature of the source of credit, the farmer was unable to obtain long-term loans, the maximum limit being 6 months.

The position of the farmer producing for the home market was more unfavourable than that of the sugar cane planter, since the private banking institutions limited their credit facilities to operations involving the production of sugar cane. Thus during the five-year period 1926-30, the loans for sugar granted to the millers, who in turn extended credit to the farmers or else directly to the latter, reached a total annual average of 38.6 million pesos. During the same period, the loans granted to planters of crops other than sugar reached a total of only 0.6 million pesos. It was precisely the private banks, who in relation to other lenders, offered the lowest rate of interest.

The farmer who was unable to borrow from the banks found himself obliged to resort to local merchants in order to obtain the necessary funds to meet the expenses incurred prior to the harvest or during it. As a rule, the businessmen-creditors also supplied the goods and victuals which the farmer required for his subsistence. Furthermore, the lender was very often the principal purchaser of his debtor's produce. These circumstances made the farmer's economic dependence on his creditor far greater than was desirable, allowing the latter to establish conditions which were onerous. It was not uncommon to find

/that real

that real rate of interest on such loans varied between 14 and 18 per cent annually, even when the nominal interest did not seem extremely high. As regards the cultivation of coffee, there are more accurate data indicating that the interest on loans rose as high as 36 per cent when credit was granted in the form of goods to the planter; when it was granted in specie, the interest was even higher.^{1/}

Only in Güines, where the truck farms and fruit orchards which supply the City of Havana are located, is any considerable amount of irrigation employed. It was estimated in 1930 that there were about 5.5 thousand hectares of irrigated land in this area. However, the total irrigated area in the country cannot be ascertained. Nevertheless, it is a well-known fact that irrigation was principally used on the land planted with export products, and that the largest extent of irrigated land corresponded to the sugar cane plantations (17.6 thousand hectares). A large part of the rice cultivation, due to the lack of irrigation facilities, is located on dry land, which explains the low yields per hectare for this crop.

As with irrigation, fertilizers are used in connection with the few highly intensive crops of Cuban agriculture: tobacco, some fruit and vegetables, all of them intended for the export market and which are amply remunerated by high prices. Fertilisers were also used to a lesser extent in the production of sugar cane. For the small and average-size farm holders who grow foodstuffs for the home market, the higher yield per unit of surface deriving from the use of fertilisers was not sufficiently great to cover costs, in view of the low prices

^{1/} F. Pérez de la Riva, op. cit. pages 226 and 223.

obtained by their products at this time.

Another cause of the low yield of some crops was the lack of seed varieties suitable for the prevailing soil conditions in the country, as was, for instance, the case for maize, bitter yuca for the manufacture of starch, beans, etc. The yield per hectare of maize at that time was only 10.5 metric quintals.

The agricultural production centres lack the necessary storage facilities for grains and other products. The warehousing methods on the farms have not changed in 50 years; very little use has been made of fumigation, while scientific methods of drying the grain were unknown.

Under these conditions the farmer was compelled to sell his crops promptly, sometimes in the face of unfavourable market conditions in order to avoid substantial losses caused by pests and plant diseases. This fact led to considerable seasonal reduction of the supply of some food products in the consuming centres and a consequent rise in prices there.

Prior to 1931, the only organized system of land transport in the country was the public railway which crossed it from east to west. Though there was a considerable net-work of private secondary railways, these had been projected for the purpose of serving the sugar industry. Wide agricultural regions, such as the extreme east of the island where coffee, cacao and banana were grown, lacked any efficient means of communication by land.

/The building

the building of the so-called central highway, extending for 1.134 kilometres, ^{1/} did not fundamentally improve the domestic system of transport because it followed the railway line. The advantages gained by the farmers are derived essentially from the competition between the two means of transport and the subsequent reduction of applicable rates for agricultural produce rather than from any extension of the transport system to areas of cultivation which remained isolated. ^{2/}

1/ Memoria, October 1944, October 1947, Ministry of Public Works, Havana, 1947.

2/ An indication of the slight importance involved in the building of this road through certain regions is that even in 1936, it still cost 9.24 pesos to transport a metric ton of coffee on mule-back from the production centre to the nearest market, 20 kilometres away.

SECTION 2. DEVELOPMENT OF PRODUCTION FOR THE HOME MARKET SINCE 1928

The scanty data available on Cuban agricultural production nevertheless suggests, after the five-year period 1925-1929, that economic activity developed considerably especially during the cyclical downswing of the thirties. As may be seen from Table 1, the quantum of imported foodstuffs fell abruptly during the period 1930-34, and since that date has varied between 33.2 and 53.5 per cent of the average for the years 1905-1909.

There can be no doubt that a part of the initial reduction of imports could be ascribed to the drop in national income, but it is highly improbable that this reduction alone could have caused so substantial a decline in the consumption of foodstuffs as that indicated by the import figures. The fact is that during those years, domestic production supplanted a part of imports. The persistence of this process of substitution also explains the comparatively low level of food imports during the five-year period 1945-1949 when the country had already overcome the crisis.

The increase in the area planted with crops for the home market, from 589.9 thousand hectares to 959.3 thousand hectares between 1930-35 respectively, constitutes still further evidence of the growth of agricultural production during the period under analysis. This increase of more than 63 per cent was greater than the rise of the population (26.3 per cent). The total cultivated area increased from 1792.8 thousand hectares to 1970.4 hectares during this period. Despite this increase, the total cultivated area remained below the average for the period 1925-29 because the contraction of the sugar and tobacco plantations was greater than the increase in land used for other crops.

The production of rice, coffee, potatoes, peanuts and beans increased

/more than

Table 3. Volume of production of selected articles, 1928-1948
(In thousands of metric tons)

Years	Rice	Potatoes	Coffee	Beans	Maize	Cacao	Peanuts
1928	6.3	..	19.8	..	..	3.4	..
1929	4.4	..	20.6	..	..	2.5	..
1930	..	..	23.9	..	..	..	..
1931	6.0	..	27.4	..	..	1.2	..
1932	17.6	58.9 a/	26.6	40.9 a/	..	1.9	..
1933	20.7	..	26.4	..	..	2.8	..
1934	26.0	..	27.7	..	..	2.8	0.3 d/
1935	27.0	50.0 c/	37.3	..	..	..	..
1936	11.0	..	31.3	..	..	..	..
1937	12.6	42.8	32.3	43.1 b/	..	..	2.5
1938	17.4	59.2	30.7	..	..	..	5.7
1939	25.8	56.7	32.0	..	..	..	14.7
1940	22.3	49.9	30.0	..	..	..	20.4
1941	29.2	34.0	31.0	..	..	..	26.6
1942	28.6	61.2	36.2	43.1	..	..	19.0
1943	45.4	43.1	34.7	40.9	..	..	32.6
1944	36.2	45.3	26.3	36.3	..	..	27.2
1945	63.3	56.9	31.1	34.1	216	1.2	12.2
1946	67.0	72.5	35.4	40.9	..	2.7	26.3
1947	70.0	60.0	33.1	36.0	223	3.0	22.7
1948	75.0	..	27.8	38.0	252	3.2	..

Sources: Rice: Cuba Económica y Financiera, Havana, November 1940; P.G. Minneman, op.cit., page 87; International Reference Service, U.S. Department of Commerce, Washington, August 1946, Page 97; Cuban Agricultural Census, 1946 and Arroz (Rice) Boletín (Bulletin) number 11 OAA Washington, February 1944, Page 61.
Potatoes: Yearbook of Food and Agricultural Statistics 1947-1948 FAO, Washington D.C., pages 34 and 24 respectively; Cuban Agricultural Census 1946,
Coffee: The World's Coffee, International Institute of Agriculture, Rome 1947, page 117; Yearbook of Food and Agricultural Statistics 1948, FAO Washington, D.C. 1949, Vol. I, page 58; Cuban Agricultural Census 1946, and Cuban Coffee Stabilization Institute,
Beans: Agricultural Statistics, U.S. Department of Commerce
Maize: Yearbook of Agricultural Statistics 1947, FAO, Washington D.C., 1948
Cacao and Peanuts : private and official sources.

Note: Years indicated refer to harvest years.

a/ Average 1930-34
b/ Average 1935-39
c/ Average 1935-36
d/ Average 1932-36

more than the population, this increase being especially remarkable in relation to the volume of production, before the raising of the tariff barriers in 1927, as compared with development from 1928-35 - see Table 3.

Rice: The production of this grain showed the highest increase in the past 20 years. It is one of the most important foodstuffs in the nation's staple diet, its annual per capita consumption being approximately 48 kilograms. ^{1/} From 6.3 thousand metric tons in 1928 production was increased to 75 thousand in 1948.

In the development of this crop two separate phases are discernible: the first, from 1928-1935, and the second, from 1936 until the present day. During the first period production increased fourfold, rising as it did from 6.3 thousand metric tons in 1928 to 27 thousand in 1945. ^{1/} The following year production fell suddenly, to rise again almost constantly to a level of 11.0 thousand tons in 1937 and 75.0 thousand in 1948.

The yield per hectare has not varied to a very considerable degree during the period under observation, since from 11.1 metric quintals per hectare for 1934-38, it reached 11.7 metric quintals in 1947, and 11.3 metric quintals in 1948, ^{2/} but the fluctuations of this average probably increased as production was intensified. On the one hand, there has been a tendency to plant a larger area of marginal lands that are increasingly inadequate and without irrigation, which tends to decrease the yield per unit of cultivated area, on the other hand, however, in some regions during the past few years, rice has been cultivated by means of modern technical methods,

^{1/} Arroz, Serie sobre Productos, Bulletin No.11, F.A.O. Washington, D.C. February 1949, pages 59 and onwards..

^{2/} Ibid.

involving irrigation schemes, the use of fertilisers, the selection of seeds and the use of adequate machinery, all of which have led to an increase in production per hectare. Thus, whereas in Guinea where ecological conditions have for a long time been good, the yield per hectare was 23.7 metric quintals in 1945; in other regions which are less advanced, the yield was only 6.8 metric quintals.^{1/}

Coffee: In the year 1931 coffee production, 27.4 thousand metric tons, had exceeded the average five-year period 1925-29 by 45.3 per cent. In 1935, it had reached the highest level of the period, that is to say, 37.3 thousand tons to 31.3 thousand tons the following year, and remained there until 1941.

In 1942 it again approached its maximum level of production, and from 1943 to 1948 fluctuated between 26.3 and 35.4 thousand tons.

No data are available with which to trace the evolution of coffee yields during this period, but the combined action of a series of adverse circumstances would suggest that it probably diminished during the period under observation. Land on which coffee is grown has been used continuously since the end of the 18th century without ever having been adequately fertilised; nor has there ever been any appreciable tendency during the present century to improve the plantation and, finally, high prices have led farmers to make use of coffee plantations which had already been abandoned.

Potatoes: The volume of production of potatoes prior to 1928 is unknown, but two facts would indicate that it increased considerably in a very

^{1/} Data of the Censo Agrícola Nacional, 1946, published by the Revista del Ministerio de Agricultura, Havana, January - June 1948, Statistical Annex.

short period. Potato imports for domestic consumption decreased from 28.8 kilogrammes per capita in the period 1925-29, to 5.2 kilogrammes per capita in the following five-year period, whereas the imports of potato seed increased from 1.2 thousand tons in 1928 to 8 thousand tons in 1929, and 13.5 thousand tons in the following year and the average for the five-year period 1930-34 was 11.5 thousand tons. Average production during the period 1930-34 (58.9 thousand tons), was not surpassed until 1938, but the following year showed a decline, registering 34 thousand tons only, in 1941. From that year on, production has varied between 43.1 thousand tons in 1943, and 100 thousand tons in 1949.^{1/}

Peanuts: Production on a commercial scale of this oleaginous plant was unknown in Cuba prior to 1929. During the next seven years the crops were used for direct consumption, and from 1939 on, processing for edible oil was undertaken.^{2/}

As a result production increased to a remarkable extent, as can be seen from the fact that the average for 1932-36 was 0.3 thousand tons, rising to a maximum of 32.6 thousand tons in 1943. Since 1944 it has fluctuated between 27.2 thousand tons and 12.2 thousand tons.

Beans: Just as in the case of potatoes no definite figures are available for the production of beans, but it is known to have expanded rapidly between 1928 and 1945. There are no indications that the same occurred as in the case of potatoes, since per capita imports have been reduced from 9.6 kilogrammes, the average for 1925-29, to 3.9 kilogrammes per

^{1/} Figures given by Potato Harvesters Association to the Ministry of Commerce, and published in the newspaper "El Mundo," Havana, February 2, 1950.

^{2/} Agricultural, Pastoral and Forestry Industries in Cuba, United States Tariff Commission, Washington D.C. 1947, page 46.

capita in a period of five years.

The average harvest from 1930-34, namely 40.9 thousand tons, was less than the level reached during the five-year period 1935-39. Since 1942 production has declined as will be seen from Table 3, but in 1949 it reached the highest level known, namely 44 thousand tons.^{1/}

The country is self-sufficient in what is known as black beans but it is compelled to import a considerable portion of the colorado variety and nearly all the white beans.

Maize: To judge from import figures, maize production began to increase rapidly during the five-year period 1925-29, that is to say, earlier than the other products discussed. The volume of per capita imports decreased from 27.5 kilogrammes, average for 1920-24, to 15.3 kilogrammes in 1925-29, and 0.6 kilogrammes in the following five-years. This decrease in the volume of imports was the greatest registered for any agricultural food product. Data from other sources confirm this assertion: 1) Exports of threshers from the United States to Cuba increased from 198 units in 1922 to 973 in 1929, dropping again to 918 and 455 respectively, in the following two years. The increase in the sales of this machinery in Cuba occurred precisely at the moment when imports of other machinery were declining. 2) Cuba exported maize for the first time in 1932.^{2/}

There are no accurate production data available until 1945, but an

^{1/} Agricultural and Foodstuffs Statistics, monthly bulletin, F.A.O. Vol 3, No.2, Washington, D.C., February 1950, page 8.

^{2/} In "Problemas de la Nueva Cuba", published by the Foreign Policy Association, (2nd Edition, Page 60, the following appears: "Maize is the second item for which production has been substantially increased. In 1925 Cuba imported maize and cornflower; while in 1932, principally because of domestic production, maize imports practically disappeared. The increase in domestic production was such that prices were considerably lowered and producers were compelled to lower production and export more than 4 million kilogrammes of maize".

/estimate of

estimate of average production for 1934-38 suggests a figure of 253 thousand tons, which was more than the 1945 production figure of 216 thousand tons.

The country became a maize exporter after 1933, the total volume of exports by 1939 having reached a maximum of 16.2 thousand tons.

It is quite likely that production remained stable after the increase in the early thirties, since despite the guarantee given in 1933 by the Commodity Credit Corporation of the United States to acquire the exportable surplus of the harvest there was no substantial increase in exports.

The production of certain goods, some of them important from the point of view of the country's staple diet probably did not increase, while the production of others decreased. Among the former there are crops, such as yucca (cassava), yam, sweet potatoes and malanga (arum). Consumption of these products, which were unaffected by the customs tariff remained relatively stable, which would suggest that production did not increase in the initial stages at the same rate as that of other goods.

As may be seen from the following table, the volume of total production declined and the relative importance of one of tubers was reduced, though perhaps less than would appear from a glance at the table.

Table 4. Production of Root Crops

(thousands of metric tons)

	Average 1937-39	1945
Sweet potatoes and yams	183.7	182.1
Cassava	163.3	178.8
Arum	136.1	89.4

Source: P.G. Minnomen, op.cit., page 137, and "Lineamientos generales para una política agraria nacional", National College of Agronomy and Sugar Engineering, Havana, August-September 1948, page 102.

Note: Calculation of arum production seems very high.

/Cocoa is

Cacao is best placed in the second group, its production after attaining 3.4 thousand tons in 1928, having fallen to 1.2 thousand tons in 1931, and finally increasing again to 3.2 thousand tons in 1945, which was not quite the figure of 1928.

The production of fruit as measured by the variation of the total area on which it was planted, has been subject to a considerable amount of structural change between 1939-45. When the land planted with banana seed was reduced from 112.7 thousand hectares to 80.7 thousand hectares ^{1/}, that on which pineapples were grown increased from 0.7 thousand hectares to 14.1 thousand hectares, and the orange groves, which covered 4.3 thousand hectares were extended over a surface of 13.4 thousand hectares.

The area given over to citrus fruits had reached a total of 15.1 thousand hectares by 1945.

In 1937, 9,000 hectares were covered with truck-garden cultivation, and by 1945 this had been increased to 11 thousand hectares.

^{1/} Includes all types of bananas. According to P.G. Minneman, op. cit., page 62, the calculation of this surface would appear to be excessively high.

SECTION 3. PRESENT SITUATION OF AGRICULTURE IN CUBA

I. Distribution of the land

Available data leads one to the conclusion that the amount of land controlled by the sugar companies decreased during the period under analysis. In 1939 these companies owned or leased 2,266.3 thousand hectares, 1/ which was 26.8 thousand hectares less than in 1925-29. Eight years later this figure had been further reduced. According to the statistics supplied by the sugar mill owners, they owned 1,873.4 thousand hectares and leased 656.4 thousand hectares, 2/ which was 153 thousand hectares less than in 1925-29.

This process was determined by the cessation of a phase of rapid development in the sugar industry, primarily because of the depression of the thirties and later, because of the contraction of the United States market caused by the import quota system which that country adopted, and finally because the Cuban Government itself regulated various aspects of the sugar industry. This made it unnecessary to maintain vast tracts of land as a reserve to expand production.

According to the 1946 agricultural census there was still a concentration of agricultural land though comparison of the data it contains concerning the size of the estates, with corresponding figures from the 1931 census points to a greater sub-division of the total surface between 1930 and 1945.

There were at the time 114 farms (0.07 per cent of the total number of plantations), the total area of which was slightly higher than that of

1/ P.G. Minneman: op. cit., page 26.

2/ Anuario Azucarero, 1948, Cuba Económica y Financiera, Havana, 1948, pages 40 and following.

/farms of less

farms of less than 50 hectares, though these latter represented 84.5 per cent of the total number of plantations. Furthermore, 1.5 per cent of the total rural holdings occupied 46.8 per cent of the total area. (See Table 5).

Table 5. Division of Plantations by the size

<u>Category</u> (hectares)	<u>Number of Plantations</u> (percentage of total)	<u>Surface</u> (Percentage of total)
Up to 24.9	69.57	11.27
25.0 to 49.9	14.94	8.70
50.0 to 74.9	5.10	5.38
75.0 to 99.9	2.41	3.63
100.0 to 499.9	6.52	24.17
500.0 to 999.9	0.90	10.93
1000.0 to 4999.9	0.49	15.90
5000.0 or more	0.07	20.02

Source: Censo Agrícola Nacional, 1948 (National Agricultural Census, 1948).

On the other hand, whereas in 1930 farms of less than 26.7 hectares represented 58.5 per cent of the total number of farms, by 1945 the proportion of holdings of less than 25 hectares equalled 69.8 per cent. Furthermore, the proportion of estates between 25 and 100 hectares was reduced from 28.5 per cent to 22.4 per cent and those of over 100 hectares, decreased from 13.0 per cent to 7.8 per cent. ^{1/} This process of sub-division of the land was due principally to the increase in population during these years and to the incapacity of other branches of economic activity to absorb the growing number of labourers.

II. Mechanisation

As has been previously indicated, the real capital per hectare in agriculture was relatively low, early in the period under analysis.

^{1/} Data from the 1931 Census and the 1946 Cuban Agricultural Census.

/Judging from

Judging from the import statistics, until recently no implements or agricultural machinery were manufactured in the country. It can be concluded that the development of mechanised agriculture was on the whole slow between 1928 and 1945, as compared with the period 1922 to 1929. If, as appears likely, the imported machinery was used in the cultivation of crops, mechanisation of production for the home market must have taken place even more slowly.

The relative importance of agricultural machinery within total imports increased after the depression of the thirties. It rose, in fact, from 0.6 per cent of the total in 1924-29 to 1.3 per cent in subsequent years, and only in 1942, 1943 and 1944 did it fall below 1 per cent of total imports. However, this fact reflects more than anything else the upward movement of prices of imported implements and agricultural machinery. Table 6 shows that during the thirties import of agricultural machinery and accessories was considerably reduced in contrast with the average for the period 1940-49. The number of tractors imported for agricultural purposes is lower than the total for that period, as it includes a large number purchased by the government for public works. There was also a similar dramatic reduction in imports of ploughs and other implements, caused by: a) reduced incomes of the farmers, b) a greater reduction shown in the price of labour as compared with that of machinery, and c) credit shortages.

Table 6. Exports of Agricultural Machinery from the
United States to Cuba, 1922-1948
(in units)

<u>Years and Averages</u>	<u>Tractors</u>	<u>Ploughs</u>	<u>Cultivators</u>	<u>Planters</u>	<u>Maize Threshers</u>	<u>Sowers</u>	<u>Reapers</u>
1922-24	361	21,662	1,428	-	265	-	547
1925-29	330	9,289	736	30	562	-	67
1930-34	26	1,126	101	3	122	4	11
1935-39	62	669	81	18	105	3	17
1940-44	104	494	151	62	189	22	29
1945	142	342	85	32	187	46	32
1946	626	697	149	39	32	17	106
1947	1,439	1,673	433	89	444	54	205
1948	1,909	1,670	620	97	665	51	159

Source: Foreign Commerce and Navigation, United States Department of Commerce, Washington, D.C.

During the second world war imports, though greater than during the thirties, fluctuated at a low level. During this period the development of mechanisation in Cuba was principally limited by a drop in foreign supplies. It was nevertheless at this time, and especially 1946, that purchases of agricultural machinery by the government reached their highest level. Consequently the Ministry of Agriculture owned 117 tractors, 77 well drillers and other auxiliary machinery in 1946.

In 1945, there were 1,886 tractors, representing a total of 57,075 HP in use among the 1,364 plantations. Of these tractors 65 per cent were in farms of more than 100 hectares, that is to say they were concentrated in farms which represented about 8 per cent of the total number.^{1/} There was a tractor in use for every 1,044 hectares of cultivated land, and according to official estimates mechanical traction had been introduced on 6.1 per cent of this cultivated surface. This fact implies that each tractor

^{1/} Líneas generales para la política agraria nacional, propositions and motions approved at the Second National Congress of Agronomy and Sugar Engineering, Havana 1948, page 17

worked an average of 64 hectares annually, 1/ a comparatively low figure in relation to possibilities of cultivation per tractor. This insufficient yield from equipment would appear to be due to the use of out-dated machinery, since an examination of import statistics shows that 47 per cent, roughly, of the tractors had been in use for more than 15 years.

Since 1946, until the present, purchases of tractors abroad have reached hitherto unknown levels; in fact their number was greater than the total acquired during the preceding 20 years.

There was also a sharp change in the type of tractor purchased. From 1922-29, 23.6 per cent were tracklaying tractors, whilst in 1946-48 this proportion dropped to 16.4 per cent, the majority being smaller tractors.

Two plough tractors represented more than half of the imports of wheel tractors during these 3 years. These changes suggest a greater utilisation of this type of machinery on the smaller holdings, that is to say on farms, the produce of which supplies the home market. There is no doubt, however, that a large percentage is used on the sugar plantations.

The increase in the volume of imports of tractors can be attributed to accumulated demand during the war years, besides the need to renew abnormally worn out equipment as well as increase of current demand.

This fact, derives from the increase of the real income of the planters and the relative rise in the price of labour and of traction animals. (See Table 7).

1/ The tractors belonging to the Ministry of Agriculture worked approximately 53 hectares in 1946, and 119 in 1947.

Table 7. Indices of Prices of Traction Animals and Tractors
(exported from the USA) and of wages paid to Agri-
cultural Labourers

Base 1937 = 100

<u>Years</u>	<u>Animal Traction</u>	<u>Tractors</u>	<u>Wages</u>
1937	100	100	100
1938	98	101	82
1939	88	95	86
1940	82	98	77
1941	87	96	96
1942	108	103	157
1943	118	..	151
1944	156	..	167
1945	217	120	197
1946	217	121	240
1947	299	147	325

Sources: Foreign Commerce and Navigation, United States Department of Commerce, Washington, D.C., and Private and Official Sources available to Economic Commission for Latin America of the United Nations.

The same has not occurred for other classes of machinery and implements. Imports of ploughs, cultivators, corn threshers and planters have not yet in recent years achieved the 1922-29 level. The reason for a lower import level of ploughs and cultivators can partly be attributed to increased domestic production of this type of machinery, to the saturation of the market during the twenties, and to the changes which have occurred in the type of implement used in Cuba. As regards this latter factor, imported ploughs were at first designed for animal tractions, whereas a substantial proportion of those imported nowadays are tractor-drawn.

These facts suggest the trend of the development of agricultural production intended for the home market during the years from 1928 until the present day, indicating that it can be largely ascribed to the better utilisation of the existing tractors in the country, and to the transfer

/of a part

of a part of these from sugar cane production to production for the domestic market. It is doubtful whether, in face of the changes which have taken place in the mechanisation of agriculture, there has been any substantial increase in the productivity of the agricultural worker.

III. Agricultural Credit

The system of agricultural credit analysed elsewhere in this report has not been substantially changed between 1928 and 1948. Precise figures are not available for the credits granted to planters, nor for the changes in the rates of interest.

There are, nevertheless, some data concerning the amounts of bank loans against agricultural produce as will be seen from the following Table.

Table 8. Distribution of Bank loans against Agricultural Production

Five-year Periods and Years	1926-1948		Total of loans in millions of Cuban pesos
	Loans on Sugar	Loans on other agricultural produce	
	(percentages of the whole)		
1926-30	38.6	0.6	195.3
1931-35	47.8	1.4	103.1
1936-40	46.6	0.6	69.3
1941	42.3	1.4	60.4
1942	42.6	1.2	68.1
1943	33.6	1.6	77.5
1944	22.8	2.8	88.0
1945	23.7	2.1	110.7
1946	24.0	1.3	161.8
1947	17.5	2.6	174.2
1948	16.6	1.1	195.2

Source: Circulación Monetaria y Movimiento Bancario, 1926-1936, Dirección General de Estadística, Secretaría de Hacienda, July 1936. Official sources of information and the Economic Commission for Latin America of the United Nations.

/These figures

These figures indicate that though the proportion of loans guaranteed by agricultural production other than sugar cane has increased slightly since 1931, in relation to the period 1926-1930, these loans are a small fraction of banking transactions of this nature. Furthermore, on the whole, agricultural credits were more on the order of commercial rather than agricultural loans, properly speaking, given the duration of their term, the guarantees demanded and the usual conditions for reinvestment. ^{1/}

The abnormal situation of agricultural credit has encouraged the government to create an agricultural bank which will probably begin operations by the end of 1950 or early the next year.

IV. Irrigation

On the whole, irrigation had progressed very slowly until 1945, when according to the National Agricultural Census, there were 59.8 thousand hectares of irrigated land, representing 3 per cent of the cultivated area. More than half of the irrigated area was planted with sugar cane and tobacco, both of these being export products.

The total figure of the Census cannot serve as an accurate indication of the technical development of irrigation during the past few years, since this data include areas under primitive and costly systems of irrigation, such as those in which water is drawn employing animal traction or pumps.

^{1/} According to information supplied to the Joint Working Party of FAO/ECLA, by one of the commercial banks, the terms of these loans are generally for 90 days, guaranteed by the harvest or the land itself and the interest charged varies between 10 and 12 per cent per annum. In some cases loans are granted against certificate of guarantee of storage in the State refrigerated warehouses, for 8 months at a rate of 1 per cent per month, the total of such loans not to exceed 30 per cent of the value of the goods stored. This latter class of transaction has appeared recently.

/It is impossible

It is impossible to make any definite statement as to the actual area thus irrigated, though it is well known that these methods are fairly widespread.

The slow development of irrigation can be explained by two causes: 1) The vast amount of initial investment required in any scheme of this nature which puts it beyond the reach of isolated farmers. Of 7 irrigation projects, the least expensive requires an investment of 119 pesos per hectare. The extension of the total irrigated area by 31.8 thousand hectares involves an expenditure of no less than 7 million pesos; 2) The lack of any definite government policy dealing with the matter. Nevertheless in recent public announcements the Government has declared its intention to assign a portion of the loan it is at present negotiating for purposes of irrigation, in order to increase production of rice.

Table 9. Distribution of the Irrigated Area by Products

<u>Products</u>	<u>Irrigated Area</u> (hectares)	<u>Percentage of the</u> <u>sown area</u>
Potatoes	6,361	75,0
Vegetables	3,085	28,0
Rice	6,236	10,8
Plantains	1,668	3,2
Sweet Potatoes	1,059	2,0
Maize	851	0,4
Grape-fruit	244	29,6
Oranges	2,612	19,4
Pineapples	150	1,1
Bananas	3	-
Other Products (excluding sugar and tobacco)	7,988	-

Source: National Agricultural Census, 1946.

Despite the aforesaid difficulties, the use of irrigation with certain crops intended for domestic consumption, especially potatoes, has increased with relative rapidity. As may be seen from the foregoing table, 75 per
/cent of the

cent of the area on which this root crop is planted is also irrigated. The use of irrigation and fertilizer has increased the yield per hectare so that it is equal, when not greater, than in other Latin American countries.

In the case of other products for domestic consumption, the proportion of irrigated land is smaller, only 28 per cent for vegetables and 10.8 per cent for rice. It is likely that the percentage may be higher for the latter product as the result of the schemes carried out in the Basin of the Yara (Provincia de Oriente), towards the end of 1949. The uneven development of irrigation in different parts of the country seems to have provoked substantial differences in the yields per hectare of the same crop. Thus, if we compare the yield of rice planted in Güines, a well irrigated area as has already been said, with that cultivated on other dry lands, it can be seen that in the former instance production per unit of area is 23.7 metric quintals, whereas in the latter it is only 6.8 metric quintals.

V. Fertilizers

Between 1920-24, imports of fertilizers reached 45.5 thousand tons (annual average), then rose to 55.8 thousand metric tons in the next five-year period, and in 1930 began to decline, reaching their lowest level in 1933. It was not until 1944 that they recovered the 1925-29 level.

The greatest part of imported fertilizers were used for sugar and tobacco, though in the case of the former fertilizers were only used on a small proportion of the total area planted with sugar-cane.

/Table 10.

Table 10. Fertilizer Imports

<u>Five-year Periods and Years</u>	<u>Imports per metric ton</u>
1920-24	45,480
1925-29	55,788
1930-34	21,936
1935-39	31,952
1940-44	42,070
1945	66,845
1946	75,968
1947	92,922
1948	31,168

Sources: Anuarios de Comercio Exterior and Document E/CN.12/83 Appendices A and B, Economic Commission for Latin America, United Nations, 9 June 1949, Table 11.

Note: The figure for 1948 only includes imports of nitrates.

The utilization of fertilizers seems to have been less in 1930 than in 1945, since in 1930 only 56.4 thousand tons were used on 1,792.8 thousand hectares of cultivated land, whereas in 1945, the cultivated area was 9.9 per cent greater, and imports were 18.5 per cent higher.

In 1945, 145 thousand hectares of land were fertilized, that is 7.4 per cent of the cultivated land, of which 27.3 thousand hectares were planted with tobacco, and 87.1 thousand with sugar cane, 34.1 thousand hectares remaining for other crops. The area fertilized for production for the domestic market was approximately 20,000 hectares.

Table 11. Use of Fertilizers on Crops indicated. 1945

<u>Crops</u>	<u>Area Fertilized (hectares)</u>	<u>Percentage of sown area</u>
Rice	2,797	4.9
Maize	1,800	0.7
Potatoes	6,279	75.0
Sweet Potatoes	1,919	3.6
Plantains	2,922	5.0
Beans (black)	508	1.1

Source: National Agricultural Census, 1946.

/As may be

As may be seen from the foregoing Table, the majority of crops consumed in the country were cultivated without the assistance of fertilizers, since only 4.9 per cent of the land sown with rice was fertilized and only 0.6 of that sown with maize was enriched with fertilizers.

Potatoes constitute the one exception of any importance, 75 per cent of the area sown being fertilized also.

VI. Storage

Despite the slow progress in certain branches of warehousing of agricultural products, cold storage facilities improved rapidly during the past few years. In 1945 the government built six cold storage plants with a net total capacity of 312 thousand cubic feet at a cost of approximately 1.5 million Cuban pesos. These cold storage warehouses were built "according to the characteristics of the geographical distribution of Cuban agriculture, the regions of fertile soil, and the number of plantations producing smaller crops, these factors serving as a basis for their location and also taking into consideration their proximity to the established routes of communications". 1/ During the first years of operations about 22 thousand tons of products, principally potatoes, beans and maize were stored therein.

The lack of adequate warehouses acts as a restrictive factor on the production of certain foodstuffs, such as potatoes, maize and beans. It is considered that the inadequacy of storage facilities for the potato crop was one of the greatest obstacles in the way of increasing production

1/ Memoria, October 1944 - January 1948, Comisión de Fomento Nacional, Havana, 1948; Sección de Almacenes Frigoríficos Provinciales.

/sufficiently to

sufficiently to supply domestic consumption.

VII. Transport

Since the building of the central highway, until 1945 there has not been any appreciable change either in the system of land transport, or in the extension of the country's railway network.

Thus in 1945 37.9 per cent of the farms depended on animal traction the whole year round, whereas a further 31.1 per cent was compelled to use the same form of transport during the rainy season from May to October. (See Table 12). The statistics do not offer an accurate idea of the deficiency of the transport system, since the farms which require only one means of communication have been grouped with those which must perforce employ both railway and highway.

Table 12. Means of Communication for the Plantations

<u>Provinces</u>	<u>U s a b l e</u>		<u>Unusable</u>	<u>Other Routes</u>
	<u>All year round</u>	<u>Part of the year</u>		
	(Percentage of the total number of Plantations)			
Pinar del Río	28.4	21.9	31.9	17.7
Habana	29.4	26.3	16.5	27.4
Matanzas	18.6	27.0	48.6	5.7
Las Villas	19.9	21.1	50.8	8.1
Camagüey	13.3	41.2	26.8	13.3
Oriente	10.8	41.6	38.2	9.5
Todo el país	18.9	31.1	37.9	12.1

Source: National Agricultural Census, 1946.

There were over 600 kilometres of roads in 1945, and it is probable that since then the proportion of farms unable to make use of this network all the year round, or part of the year, has decreased, especially in the provinces of Las Villas and Oriente.

VIII. Tariffs and Prices

This above analysis of the factors involved in agricultural production /reveals that

reveals that the evolution of such production during the period under review has not progressed with equal intensity in the same directions. Whereas some of the factors have, on the whole, remained unchanged, or have deteriorated in relation to conditions obtaining during the twenties, others, on the contrary, have improved thus contributing to an increase of agricultural production. The changes which have occurred have been so limited that they cannot be considered as having given any substantial momentum to the increase of agricultural production for home supply purposes, and even less to the modifications in the structure of agriculture.

The protectionist tariff established in 1927, together with the changes in the price relation of the various agricultural products, have without doubt been the most influential factors in giving rise to the changes which have taken place in the country's agriculture during the period under observation.

As has already been pointed out, the tariffs established in 1927 raised the level of customs' taxes generally, and especially those on foodstuffs.^{1/} The changes made in the tariffs during that year were followed by other increases until 1934, when the protective tariff policy was attenuated by the drawing up of a bilateral trade agreement with the United States. Despite the concession of customs' reductions to that country, preferential tariffs were still considerably higher than the general tariff level applicable before 1928; it is therefore not surprising that the customs' duties were higher than FOB prices at the port of embarkation for nearly

^{1/} The customs duty on maize was increased from 0.39 pesos per 100 kilogrammes in 1926, to 3.90 pesos in 1943.

all imported foodstuffs.

As the tariff was increased, enabling the farmer to sell for a higher price without fear of competition from foreign products, the price of sugar, and consequently of sugar-cane, decreased rapidly. This brought about a change in the price relations between sugar cane and agricultural produce intended for domestic market supplies, naturally favouring the latter. This is the explanation for the sudden increment of production during the cyclical downswing of the thirties. A further factor strengthening the initial impetus and which emerged from changes in the price relation of the aforesaid products was the growing unemployment in the sugar industry, encouraging many planters to cultivate land for subsistence.

From 1934 on, there was a change in the position obtained during the preceding years, with the rise in the price of sugar and a decrease in Cuban customs' duties levied on certain foodstuffs as a result of the reciprocal trade agreement signed with the United States. The full extent of this measure can best be judged by observing what took place in the case of rice. The decrease of production subsequent to the levying of the preferential tariff seems to have resulted in a number of Cuban rice producers being unable to compete with the product imported from the United States. It was not until the beginning of the second world war that an inflationary rise took place in food production prices, which was to the advantage of the price relation of these as compared with exportable products. In some cases Government action was taken for the purpose of maintaining the price of certain goods, these measures being of great /importance, as

importance, as will be seen by observing the evolution of cultivation.

IX. The Evolution of Cultivation

1. Coffee and Cacao

The increase in the production of coffee was largely due to Government measures taken for the purpose of extending its cultivation. The initial stage of such intervention was the increase of the import duties levied on this product, so that by 1932 customs' duties on coffee from Puerto Rico had risen from 173.20 pesos to 276 pesos per metric ton, and that from other sources was taxed from 234 pesos to 320 pesos per metric ton. Some idea of the extent of the protection granted to this product can be gathered from the fact that in 1932 the lowest tariff equalled 69.2 per cent of the FOB price of imported hulled coffee.

The immediate effect of the tariff barrier was an increase in the price of imported coffee, which rose in 1932 to 1,194.84 pesos per metric ton. At the same time the price of coffee beans in the country also rose as the result of the pressure deriving from domestic demand bearing on domestic availability, so that its maximum price was 529.10 pesos per metric ton. 1/ This increase of price occurred precisely at a period when money wages in agriculture, and particularly in coffee growing and coffee harvesting, had fallen to the lowest level reached in 10 years, 2/ thus further increasing the profits per unit of production. Production increased at once and new plantings were also made. It should be added

1/ Prices obtained from Muestro Café, National Association of Coffee Growers, Havana 1934, page 35.

2/ According to data from the National Statistical Commission in Cuba, nominal wages in coffee harvesting decreased from 1.20 pesos daily in 1926 to 0.50 pesos in 1932.

/that there were

that there were relatively large areas where coffee trees grew, but went untended. As has already been pointed, production rose from 18.9 thousand metric tons (1925-29) to 27.4 thousand metric tons, that is an increase of 45.3 per cent. In the 4-year period 1928-31, 18.9 thousand hectares were sown.

In 1934 the constant increase of production and the maintenance of high prices (which probably reduced domestic demand) caused the accumulation of large stocks. This led to a reduction of prices which in 1934 fell to one fourth of the peak level they had attained in 1932. It should be added that the high prices were also largely responsible for a decrease in domestic demand for coffee.

This series of events led the coffee growers to request of the Government "the fixing of a minimum price and the declaration of a moratorium for the debts guaranteed by either the harvest or the plantations themselves". The Government responded by creating the "Cuban Institute of Coffee Stabilization", which constituted the first step in direct official intervention in matters connected with coffee production and distribution. This body "was empowered to take the necessary measures to control production, cultivation, distribution, consumption and import and export prices of coffee". 1/

Since its foundation the Institute's policy has been essentially that domestic demand be met by domestic production, and that the Cuban coffee grower be guaranteed a remunerative return for his product. With this object in view, it 1) sets aside annually a portion of domestic production for export with the object of equilibrating domestic supply and demand and

1/ El Café, historia de su cultivo y explotación en Cuba, by F. Pérez de la Riva, Havana 1944, pages 236 and following.

also of avoiding an accumulation of stocks. Should the coffee grower not voluntarily supply a part of his production for export, the Institute establishes quotas which he is obliged to sell abroad, even when prices obtained on the domestic market are higher. 2) The Institute fixes the price of coffee on a sliding scale, according to the degree of processing, establishing a minimum and sometimes a maximum price as well. 3) The Institute determines the quantity and quality of coffee which may be imported when domestic production is insufficient to meet domestic demand.

The aforesaid measures, and other supplementary statutes, have caused a rise in the domestic price of coffee since 1936, and have maintained it at a level considerably higher than that of export prices since 1945, which was the last year in which Cuba exported coffee.

Table 13. Prices of Domestic and Export Hulled Coffee
(pesos per metric ton)

<u>Classes of Coffee</u>	<u>1936</u>	<u>1939</u>	<u>1944</u>
Domestic market	198.41	424.38	551.15
For export	143.30	88.18	231.48

Source: National Association of Coffee Growers, op. cit.

This discrepancy in coffee prices involves constant pressure on the part of the coffee grower, who is tempted to sell his whole crop on the domestic market. In order to reduce this difference, the Government has sometimes established a bonus for exporters, which during the 1939-1940 harvest was 0.25 pesos per 100 pounds exported.

/Table 14.

Table 14. Price Indices of Hulled Coffee, Sugar Prices

Base year 1936 = 100

<u>Years</u>	<u>1</u> <u>Coffee</u>	<u>2</u> <u>Sugar</u>	<u>Ratio of</u> <u>1 to 2</u>
1936	100.0	100.0	100.0
1937	177.8	101.7	174.8
1938	213.9	83.9	254.9
1939	213.9	87.2	245.3
1940	211.1	78.6	268.6
1941	219.4	97.9	224.1
1942	244.4	146.1	167.3
1943	266.6	141.1	188.9
1944	277.8	142.5	194.9
1945	277.8	169.7	163.7
1946	305.5	205.2	148.9
1947	277.8	277.4	100.1

Source: National Association of Coffee Growers, op. cit., page 36, and Anuario Azucarero de Cuba, 1948, Cuba Económica y Financiera, Havana 1948, page 90.

It will be seen from the foregoing Table that the price relation of sugar and coffee has become even more favourable to the latter than in 1936, though in 1942 this advantage began to decrease, so that by 1947 the situation was again the same as in 1936. ^{1/} This comparison points to the immediate cause of the increase in coffee production since, as has already been suggested, in the past whenever the price relation was favourable to sugar, the coffee plantations were destroyed and replaced by sugar plantations.

Cacao has been cultivated in Cuba in the same regions as coffee and on land which is good for either coffee or sugar cane. Historically, this crop has been subject to the fluctuations in the relation of its prices to those of the aforesaid products; thus production of cacao was intensified when

^{1/} The relationship was probably more favourable for coffee than is shown by the foregoing statistics, since the prices used for this product were the minimum established by the Government.

/the price of

the price of sugar began to fall in 1925. 1/ The price relation (measured by export prices) 2/ began to fluctuate in favour of the former from 1926 to 1930, but deteriorated considerably in relation to coffee. By about 1931 coffee began to displace cacao, consequently decreasing production of the latter.

Only in the past few years has there been an increase in the production of cacao, stimulated by the rise in world prices for this product. The development of production of this crop, as well as of coffee and sugar, all of which require a relatively long period of growth, has been substantially hampered by the prevailing credit system in the country, since the usual agricultural credits are all limited to short terms.

2 . Rice

In addition to raising of the tariff on rice in 1927, the Government took other measures with a view to increasing production among which the following should be mentioned: the selection and distribution of seeds to the planters, instruction in the best methods of cultivation and the establishment of 39 small mills to hull the rice. 3/ These measures increased production from 6.3 tons in 1928 to 27 thousand tons in 1935, though there does not appear to have been any appreciable improvement in the yield per hectare during these 7 years.

1/ The Agriculture of Cuba, P.G. Minneman, Washington 1942, page 91.

2/ Both for cacao and coffee wholesale prices have been used and not those obtaining on the plantations, since the latter were unavailable. This system can be justified, in the case of coffee, since there is a definite relationship between the various prices fixed by the Institute of Coffee Stabilization. It is less justifiable in the case of cacao though there is somewhat of a relationship between the two. In 1943, therefore, when export price was 3.7 cents per pound, the price on the domestic market the was 3.07 cents (Cuban currency).

3/ P.G. Minneman; op. cit, page 100.

Until 1934 a single customs' tariff was levied on all the rice imported, but in that year, because of the bilateral agreement with the United States, Cuba reduced the customs' duty on American rice from 4.70 cents per kilogramme to 1.85 cents per kilogramme, Cuban currency. A higher tariff (3.70 cents per kilogramme) was levied on rice of Indian or Burmese origin, which had been the principal source of supply for Cuba until 1930. A maximum tariff of 4.70 cents per kilogramme was levied on Siamese rice which had begun to displace supplies from India and Burma. A further consumption tax of 10 cents per 100 kilogrammes was levied on all rice of any origin other than the United States or Indo-China.

The advantages obtained by the United States in the way of a preferential tariff, together with the lower transport costs of rice from that country, gave the American product a considerable competitive advantage over that of other countries, despite the higher price of the North American article as may be seen in the following Table.

Table 15. Prices of Rice in the United States and French Indo-China

<u>Averages</u>	<u>1931-1939</u>	
	<u>Hulled Rice Medium or Good, Blue hose, in New Orleans, U.S.A.</u>	<u>Clean Rice No.1, in Saigon, Indo- China</u>
1931-35	3.7	2.4
1935/36	3.3	0.9
1936/37	2.2	0.9
1937/38	2.6	1.2
1933/39	3.5	1.4

Source: Algunas consideraciones estadísticas sobre el problema del arroz en Cuba, Hugo Vivó, Revista de Agricultura, Ministerio de Agricultura, Havana, September to October, 1943, page 20.

Consequently North American rice displaced its competitors on the Cuban market. Cuban imports of American rice increased from 8.6 thousand tons / (1931-35 average) to

(1931-35 average) to 51.9 thousand tons in 1937, and 146.4 thousand tons in 1941. After 1942, Cuban purchases of rice in the United States fluctuated between 101.6 thousand tons and 184.4 thousand tons. From supplying 5.2 per cent of Cuba's total rice imports in 1931-35 the United States by 1941 was supplying 92.2 per cent and by 1948 had retained an average of 73.3 per cent of the Cuban market for itself. The rice exported to Cuba from the United States was equivalent to 1.1 per cent of the total volume of American production in 1931-35, which proportion rose to 23.7 per cent in 1941, and fluctuated between 10.3 per cent and 17.4 per cent until 1947.

Cuban production of rice diminished after the lowering of the tariff on United States rice, in 1934 (see Table 3), as has been pointed out above. In 1936 the price of rice began to rise, and in 1939 the Government increased its efforts to expand domestic production. In that year the Cuban Ministry of Agriculture distributed 340 tons of seeds among the planters as compared with 37 tons in 1936; this Ministry also imported high capacity milling machinery. Notwithstanding Government intervention, the rise in prices was an even stronger factor in promoting the increase of domestic production. The continuous increase of rice prices will be observed from the following Table, together with the favourable movement of this product's price relation with sugar.

Table 16. FOB Price Indices, Foreign Port of Embarkation for Rice
and FOB Price Indices, Home Port, for Sugar

Base 1936 = 100

<u>Years</u>	<u>1</u> <u>Rice</u>	<u>2</u> <u>Sugar</u>	<u>Ration of</u> <u>1 to 2</u>
1936	100.0	100.0	100.0
1937	122.3	101.7	120.2
1938	130.6	83.9	155.7
1939	125.4	87.2	143.8
1940	140.0	78.6	178.1
1941	217.3	97.9	222.0
1942	347.2	146.1	237.6
1943	396.8	141.1	281.2
1944	421.9	142.5	296.1
1945	430.5	169.7	253.7
1946	490.2	205.2	238.9
1947	583.5	277.4	212.1
1948	625.6		

Source: Anuario Comercio Exterior, Cuba, 1949.

According to the partial data available the price paid to the rice planter increased by 222 per cent between 1938 and 1945, but this increase was less than that of import prices.

3. Peanuts

As has already been pointed out, peanuts were not cultivated to any great extent prior to 1937. Production increased as imports of edible oils were restricted during the Second World War from 9.1 million gallons (1925-29 average) to 2.6 million gallons (1940-44 average).

The Government encouraged the cultivation of this oleaginous product by establishing a minimum price to be paid on plantations, and exempting imports of the seed from customs duties. During the past few years, however, the volume of domestic production has decreased as a result of the competition of imported edible oils.

