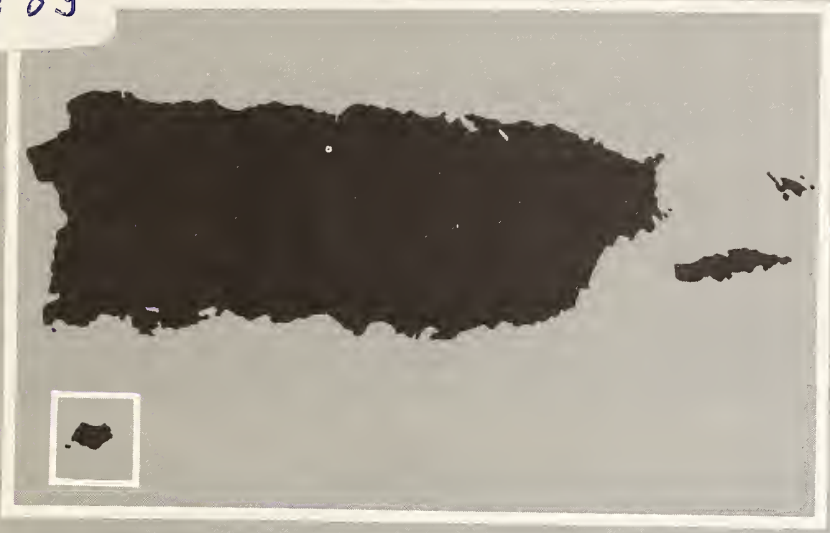


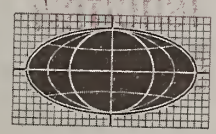
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AGRICULTURAL PRODUCTION AND TRADE OF PUERTO RICO

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FOREWORD

This report analyzes recent developments in Puerto Rico's economy, and trends and prospects in the consumption, production, and trade of farm products. It is the first study on Puerto Rico prepared by the Western Hemisphere Branch.

This report was prepared as a part of the continuing review and analysis of general economic and agricultural developments in the Western Hemisphere. Puerto Rico was included in this research effort because no previous study of it had been undertaken and because of a continuing interest in the island as a result of its unique status and success in development.

This report is another study in the demand and competition series. Other recent studies in this series include: The Agriculture and Trade of Panama, ERS-Foreign 179; Brazil--Agricultural Competition and Demand, ERS-Foreign 190; and The Agriculture and Trade of British Honduras, ERS-Foreign 209.

This report was designed and carried out by John D. McAlpine. Assistance in economic, production, and trade analysis was provided by Rena E. Perley and Bruce Greenshields.

EXPLANATORY NOTES

The metric system is generally used throughout this report with U.S. equivalents where appropriate. Length is expressed in meters (39.37 inches) and kilometers (0.6214 miles); area in square kilometers (100 hectares or 0.3861 square miles) and hectares (2.4711 acres); and volume in kilograms (2.2046 pounds) and metric tons (2,204.62 pounds or 0.9842 long tons). Consumption estimates are at retail level. Reference to exporting and importing and other trade terminology is always made from the Puerto Rican viewpoint, even when referring to trade with the United States and its possessions. Statistical usage includes zero for none, negl. for quantities of less than 0.50 units shown, n.a. for not available, and -- for not applicable.



U.S. DEPARTMENT OF AGRICULTURE

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SUMMARY

Puerto Rico's trade has increased rapidly in recent years. Between 1950-54 to 1960-64, total exports increased in value from \$237 to \$764 million but lagged behind import gains which increased from \$377 to \$1,122 million. More than 97 percent of the island's export trade and over 93 percent of its import trade were with the United States in 1960-64.

Puerto Rico's agricultural trade, nearly all with the United States, went from a surplus of \$24 million to a deficit of \$6 million between 1950-54 and 1960-64, accounting for nearly one-third of the deficit in total trade. The value of agricultural exports increased from \$166 to \$231 million while the value of imports increased from \$132 to \$237 million. The outlook is for continued gains in agricultural exports as increases in exports of tobacco, rum, coffee, and miscellaneous products more than offset declines in sugar and molasses shipments. But agricultural imports are likely to increase at a more rapid rate. The increasing imports of livestock and meat products, corn, and tobacco are expected to greatly exceed purchases of dairy products, pulses, lard, wheat, and rice which will probably remain at their present level or decline slightly.

In recent years, agriculture has relinquished its once dominant economic role to industry and tourism, but it still accounts for nearly 10 percent of the gross national product, is the largest employer, and furnishes about 45 percent of local food supplies.

Local demand for agricultural products has increased rapidly with the growth of the island's economy and population. While the natural rate of population growth has been one of the highest in the world, reaching 3.7 percent in the early 1950's, the actual population growth in Puerto Rico was under 2 percent due to heavy emigration to the United States. Per capita GNP has nearly tripled since the early 1950's, increasing at a rate of 5 to 6 percent from \$428 to \$1,072. Food consumption is at a comparatively high level and was estimated at 2,950 calories per day in 1959-60, slightly below that of the United States but well above the average for Latin America. Consumption trends are expected to continue to shift from cereal products, starchy crops, and pulses to other fruits and vegetables, fats and oils, and livestock and meat products.

Modern farm production practices have prevailed in recent years and output has continued upward despite increasing competition for land and other farm inputs. Agricultural production increased at a modest rate of 2.8 percent annually between 1960 and 1964. Food output increased at approximately the same rate due mainly to very rapid output gains in livestock products and a small increase in crop production. The outlook is for a continued decline in land available to agriculture and increasing difficulties in maintaining present rates of increase in per capita agricultural production.

AGRICULTURAL PRODUCTION AND TRADE OF PUERTO RICO

By

John D. McAlpine, Economist
Western Hemisphere Branch
Foreign Regional Analysis Division

INTRODUCTION

Puerto Rico is an island in the West Indies located between the Atlantic Ocean and the Caribbean Sea. It links the islands of the Greater Antilles, of which it is the smallest, to the west with the bridging islands of the Lesser Antilles stretching to the southeast to the continent of South America. Puerto Rico is slightly larger than Delaware and Rhode Island combined, with an area of 5,527 square kilometers (3,435 square miles). The main island, Vieques, and Culebra are inhabited, but the other smaller islands off the east coast of Puerto Rico are generally devoid of permanent inhabitants. These smaller islands account for less than 2 percent of Puerto Rico's total land area.

Puerto Rico has few natural resources other than its location, agricultural and forestry potential, and tourist appeal. Both in the past and in recent years, the island's destiny has been shaped by its location near or at the crossroads of important discovery and transportation routes. Agriculture has long played a key economic role, grudgingly giving way to industry. The island's wide expanses of beaches in a tropical setting have led to an increasingly important tourist industry.

Geography has played a dominant role in the evolution of Puerto Rico's political and economic status. Since its exploration by Spain in 1493, a year after the discovery of the New World, its agricultural production and trade have been important. The early production of sugarcane and sugarcane products under Spanish rule became even more important when the United States displaced Spain in 1898. Under a U.S. law passed in 1900 which defined Puerto Rico's status, land holdings were limited to 200 hectares (500 acres), but this restriction was generally ignored. By the mid-1930's sugarcane production completely dominated the island's economy, and about one-fourth of the land used for producing cane was controlled by four non-Puerto Rican companies. These companies also controlled about 45 percent of the cane grinding capacity which further extended their monopoly.

The coming to power of the Popular Democratic Party (PDP) in 1940 marked the beginning of the modern era for Puerto Rico and led to its unique commonwealth status in 1952. This status granted virtually complete political autonomy to its people, placed the island in the U.S. customs union, and provided its people certain benefits enjoyed by U.S. citizens without tax obligations. Puerto Rico embarked on a far-reaching program for economic and social reform which broke sharply with the past and led to rapid development and growth. The island has since chosen to retain this unique status, the continuation of which will singularly shape its future development.

Development Policies and Programs

The PDP came to power on a platform of local autonomy and economic development. Initially, primary emphasis was placed on land reform. The land law of 1941 limited land holdings to 200 hectares (500 acres). A number of other development policies and programs followed which reflected the limitations of agricultural development. Focus shifted to an ambitious industrialization program based upon the commonwealth's unique economic relationship with the United States. Efforts toward overall economic development were perhaps best known outside Puerto Rico as "Operation Bootstrap," a planning operation which began in the 1940's and, in effect, has been continued since then through subsequent plans.

Improved public health and compulsory education provided a cornerstone for this new development policy. Increased local tax revenues were largely used for the improvement of these services, and external borrowings financed self-liquidating industrial projects. The average life span of the Puerto Rican rose from 46 years in 1940 to 70 in 1961. Since 1941, 25 to 30 percent of the commonwealth's budget has gone into education. Elementary school facilities adequately met all needs by 1957 and the literacy rate increased from 68 percent of the total population in 1940 to 88 percent in 1967. English is almost universally taught as the second language. In the educational system, skills used in the tourist and manufacturing industries have been stressed to attract potential investors.

Development proceeded rapidly due to favorable policies and programs. Inducements used to attract industrial and tourist investors included feasibility studies, desirable plant sites, special financial assistance, low tax rates, liberal periods of tax exemption, and rapid tax write-offs. With the resulting low production costs, together with opportunities for duty-free marketing of virtually unlimited output to the United States, foreign investment increased and industry developed.

In 1940, the sugar industry was practically the only one Puerto Rico had. Now over 1,500 manufacturing plants produce a vast array of products. New plants are being added at a rate of over 100 a year. Parallel development of the tourist industry, catering mainly to U.S. citizens, has placed Puerto Rico in a leading role in the Caribbean tourist trade.

Agricultural development continued to receive attention in spite of the shift in emphasis to industry. Agricultural policies and programs under the commonwealth have aimed mainly at improved land tenure, stepped-up research and extension services, better marketing facilities and prices for farm products, reasonably priced production requisites, more adequate farm credit, and soil conservation. The Aided Self-Help Housing Program carried out under the Social Programs Administration of the Puerto Rican Department of Agriculture has helped 15,000 rural families move into their own self-built houses.

Major emphasis was given initially to improved land tenure through the distribution of expropriated holdings under three main programs provided for by the land law of 1941. Squatter resettlement was made possible through the Agregado Program, which provided tracts of 0.1 to 1.2 hectares (0.25 to 3.0 acres) for each family. Over 67,000 families were resettled under this program by July 1965. The landless rural squatters have all but disappeared as the result of this program and increased nonfarm employment opportunities.

The Family Farm Program granted life tenure to operators of farms of 2 to 10 hectares (5 to 25 acres). However, this program was never large since a relatively small amount of land was made available. By 1960, 1,116 farms had been established

and were generally regarded as commercially successful.

The Proportional Profit Farm Program was the most revolutionary plan of the land law. Under this program, substantial areas of sugar lands were leased to seven different cooperative projects or farms to keep the estates in large management units whose profits would be shared by the workers. Although in practice, this plan met with little commercial success, it provided employment and stimulated the output of sugar and sugarcane products for export in earlier years when the land might have been used for other purposes. In 1950, over 25,000 hectares (62,000 acres) were leased under this program.

Considerable U.S. assistance is provided to Puerto Rican farmers. Financial help is extended through the U.S. Cooperative Farm Credit System by three institutions--the Federal Land Bank and the Federal Intermediate Credit Bank of Baltimore, Md., and the Baltimore Bank for Cooperatives. Technical assistance is provided by the Federal Extension Service, the Soil Conservation Service, and other agencies of the U.S. Department of Agriculture.

Agricultural programs of the commonwealth are mostly administered by the Puerto Rican Department of Agriculture. Farmers are represented by three Puerto Rican associations--the farmers, the sugar producers, and the rum producers--as well as by local branches of major U.S. farm organizations.

Role of Agriculture

In Puerto Rico, agriculture has declined in importance; however, it is still important to the island's gross national product (GNP), labor force, food supply, and export earnings.

Agriculture has dropped from the most important private contributor to GNP to the least important in the last 15 years (table 1). ^{1/} In 1950-54, the value of agricultural products, including fishery and forestry products, which together account for less than 2 percent of the agricultural output, was \$199 million. This amount represented 21 percent of GNP and was exceeded only by the value of products from the government sector. By 1960-64, agriculture's share had declined by one-half and was less than the contributions of the manufacturing, trade, and government sectors. The effects of growing industrialization and urbanization are apparent in the per capita distribution of the gross national product (GNP). The agricultural labor force's share of GNP steadily declined. Agricultural per capita income dropped from 75 percent of the average income of nonfarmers in 1950-54 to 52 percent in 1960-64. For 1967, estimates indicate that it may be as little as 47 percent of the average.

The agricultural labor force maintained a fairly constant share of the total labor force through 1963, but its share of the total has dropped rapidly since then--from 28 percent in 1950-54 to 16 percent in 1967 (table 2). However, agriculture still remains the largest employer. Its share of the total labor force is low probably because of an appreciable number of part-time farmers and a large amount of unpaid family labor. In addition, the agribusiness sector is of considerable importance when distributing and processing activities are considered, especially if the sugar and sugar product industries are included.

^{1/} All tables are in the appendix, p.14.

DEMAND FOR AGRICULTURAL PRODUCTS

Demand for agricultural products has increased with the development of the island's economy and the growth in population, income, and industrial and intermediate market demand.

Population

The estimated rate of natural increase of population grew from 3.4 percent in 1950-54 to 3.7 percent in 1955-59 (table 2); it declined to about 3 percent in the mid-1960's. The increase in the 1950's reflected the effectiveness of public health measures combined with high birth rates. The later decline resulted from a drop in birth rates.

The actual population in Puerto Rico has grown at a more modest rate, increasing 0.7 percent in the 1950's and 1.6 percent in the 1960's. The difference between the actual and natural rates of population increase is attributable to the large-scale emigration to the United States during the 1950's. The increase in the rate of actual population growth from 1962 through 1965 resulted from a sharp decline in emigration.

Heavy emigration during the 1950's tended to slow down the growing food requirements and to cause per capita income and standards of living to rise. The actual population in 1964 was reported at 2.6 million, but it would have totaled an estimated 4 million at the projected rate of natural increase. This larger population would have made it necessary to increase food requirements by almost two-thirds and would have caused a similar decrease in per capita income. Moreover, it would have probably made the achievement of development policies and programs virtually impossible.

Urbanization has proceeded steadily, which has increased the need for marketing facilities and changed the types of food demanded. Although the rural population has also continued to rise, its share of the total population has declined from 59 to 51 percent between 1950-54 and 1966, and its rate of increase has fallen far below the urban rate of increase.

Income

Rapid increases in income have caused a greater demand for food commodities and nonfarm products. The average per capita GNP has nearly tripled since the early 1950's, increasing from \$428 to \$1,072 (table 1). The present per capita gross domestic product (GDP) level is higher than that of any Latin American country and ranks with that of the Caribbean's more favorably situated islands, such as the Netherlands Antilles and the Bahamas. It is about 40 percent of that for Canada, and approximately one-fourth of that for the United States.

The GNP increased at a rate of over 6 percent in the 1950's and over 8 percent in the present decade. This has resulted in strong per capita gains of from 5 to 6 percent over this same period. Although economic gains during the 1960's have been rapid, greatly increased efforts will probably be required to sustain this rate of growth. Also, the slackening of emigration and continual increase in the island's population may tend to slow down per capita gains in the next few years.

Food Consumption

Food consumption is at a comparatively high level as a result of rapid economic gains in recent years. The diet of the average Puerto Rican compares favorably with that of people in other areas in terms of nutritional value and its principal component food groups.

Food consumption in Puerto Rico is considerably in excess of U.S. Department of Agriculture minimum nutritional standards for this area (table 3). For 1959-60, food supplies available for consumption at retail levels provided an estimated 2,950 calories per capita per day, or more than one-fifth above the reference standard. Similarly, the estimated intake of protein greatly exceeded the standard. Fat consumption was estimated at more than double the standard. The nutritional value of the diet of Puerto Ricans is well above the average for Latin America and only slightly below that of the United States.

Cereal products contributed almost one-third of the total daily calorie intake (table 4). Next in importance were sugar and fats and oils, which supplied about 15 percent each. Following were livestock products and fish, which together accounted for about one-fifth of the total. The remaining 18 percent was made up of starchy crops (8 percent), pulses (6 percent), and other fruits and vegetables (4 percent).

The proportion of calories supplied by the principal food groups in Puerto Rico's diet is generally somewhere between that supplied by the principal food groups in the U.S. diet and the average proportion in the Latin American diet. Consumption of cereal products, starchy crops, and pulses is higher than it is in the United States, but lower than it is in Latin America. Consumption of other fruits and vegetables, fats and oils, and livestock and meat products is lower than consumption of these foods in the United States, but higher than their consumption in Latin America. Sugar consumption is about the same in all three areas.

Estimates of per capita supply and utilization of important farm commodities indicate the significant role played by imports (table 5). Local producers provided most of the total supply of starchy crops, sugar, other fruits and vegetables, and eggs in 1960-64. Local production also supplied Puerto Rico's large sugar export trade. Most of the supply of grains, pulses, fats and oils, meat and meat products, and fish was imported. Reexport of these products was generally of minor significance.

Since 1950-54, per capita utilization of wheat and rice has changed from 28 and 61 to 30 and 57 kilograms, respectively. For the same period, per capita utilization of sugar declined by 5 kilograms. Per capita utilization of bananas and plantains declined from 114 to 69 kilograms, and that of pulses from 13 to 11 kilograms. From 1950-54 to 1960-64 utilization of the following commodities increased: lard, from 12 to 13 kilograms; vegetable oil, from 3 to 7; meat, from 24 to 39; and milk, from 155 to 225. Trends in the utilization of other foods varied.

Food consumption will stay at these levels only if there are modest and gradual increases in per capita consumption of all food. In the future, further shifts are likely from consumption of cereal products, starchy crops, and pulses to other fruits and vegetables, fats and oils, and livestock and meat products. Per capita sugar consumption will probably remain fairly stable.

Industrial and Intermediate Market Demand

Local consumer demand for farm-originated industrial or nonfood products probably follows trends similar to those for food items. Supply and utilization estimates for

tobacco, coffee beans, molasses, and rum have been included in table 5. In addition, there is the intermediate market demand for imports needed for processing and reexport. This demand is presently oriented almost entirely to the United States and, except for cotton textiles and tobacco, has been mostly for products of nonagricultural origin.

The economy of present-day Puerto Rico is based largely on the importation of raw materials or other inputs and the exportation of resulting processed, assembled, or manufactured products. The United States is the main source of inputs and destination of finished products. The inputs and exports involved are mostly associated with light industries, which manufacture products ranging from electronic components to cotton textile products. A substantial part, and in some cases a major part, of the U.S. supply of many of these products originates in Puerto Rico. The mainland is an almost limitless market for Puerto Rico's industrial output.

Considering the advantages Puerto Rico enjoys with respect to costs of production, the potential for similar intermediate marketing or trade with other parts of the world probably exists. However, as yet this potential is virtually untapped. Because of the island's location and the rapidly growing import needs of the Caribbean, Puerto Rico is in a position to assume an important role in that area's trade.

AGRICULTURAL PRODUCTION

Fairly fertile soils, an abundance of labor, and limited capital have long been dominant factors in Puerto Rico's economic development and agricultural output trends. Before 1940, the plantation system prevailed for producing sugarcane, and most other crops were farmed at a subsistence level. Farm practices were generally primitive, yields for most crops were low, and production of various commodities was fairly well stabilized. With the agricultural development since 1940, this pattern has changed. Comparatively modern production practices are now used, and output has continued upward in spite of increasing competition for land and other farm inputs.

Resources

Puerto Rico is largely a flat to rolling coastal plain ranging in elevation from near sea level to about 305 meters (1,000 feet). The Cordillera Central, which covers about one-fourth of the south central portion of the island, rises gradually from the coastal plain to an elevation of about 2,000 meters (7,500 feet). This elevation, together with the trade winds, causes some variation in the otherwise tropical climate resulting from the island's location in the tropic zone at the confluence of the North Equatorial, Caribbean, and Antilles ocean currents.

Puerto Rico, although a small island, has not only a wide range in natural vegetation but an even wider range in soils. Vegetation varies from tropical rain forest to semidesert with patches of salty soils. Land forms vary from young alluvium to old stable landscapes with highly developed Oxisols. Vertisols are dominant in the southwestern area. Inceptisols and Ultisols prevail in the hilly to mountainous areas. But there are many scattered areas of Alfisols, Mollisols, and Spodosols, as well as areas with plinthite. In fact, nearly all of the soils of the United States are represented in Puerto Rico. Thus, it is often said that Puerto Rico is a great outdoor soil museum. Amounts of plant nutrients vary enormously within short distances and are lowest in the most humid parts of the island. Amounts of organic matter and nitrogen, however, are on the average about as high as quantities in Iowa and are much higher than amounts in the humid southeastern States.

Average temperature is uniformly about 80 degrees the year round. Annual rainfall ranges from about 40 inches in the mountain-shielded southern portion of the island to a high of 80 inches in a small area at the western extremity. There is less rainfall from January through June than during the remainder of the year. Precipitation ranges from an average of 3 inches in February to almost 8 inches in November. From time to time, Puerto Rico's agricultural production suffers from severe droughts.

Land resources have tended to become less readily available for agriculture with the rapid gains in population and increased emphasis upon industrial and recreational development. Measures to control soil erosion and reforestation projects have also tended to restrict land availability. As a result, farmland declined from 741,000 hectares to 699,000 hectares (1,831,000 to 1,727,000 acres) between 1940 and 1966 (table 6). Cropland decreased even more sharply during this period, although land in sugarcane and coffee has remained about the same. Farmland in pasture and range has shown some decline while the portion in woodland and waste has increased. In the same period, land in nonfarm use has increased more than one-fourth.

Agricultural labor and farm capital are generally adequate for present production practices. However, competition from the nonagricultural sectors of the economy continues to increase. Farm wage rates are climbing, but the gap between agricultural and industrial wages is widening. Special sources of credit for the agricultural sector have assisted in maintaining farm output in the face of higher returns from the nonfarm sectors.

Farm Practices

Production practices have undergone considerable change in recent years. While the average size of farms, in total area and in cropland has apparently changed little, increased mechanization, more intensive land use, and a decline in the importance of farm labor have taken place.

The number of farm tractors increased from 723 in 1940 to 4,423 in 1964 (table 7). The result is that farmland per tractor declined from 1,025 to 164 hectares (2,533 to 405 acres) in this period. This trend indicates rapid mechanization and a substitution of farm machinery for labor. A continuation of this trend is likely.

Fertilizer use has increased at a somewhat slower rate than has mechanization. Total fertilizer nutrients available were estimated at 53,300 tons in 1940 and 80,000 tons in 1964 (nutrient basis). Application rates in the same period apparently increased from 72 to 110 kilograms per hectare (158 to 243 pounds per acre) of farmland and from 164 to 295 kilograms per hectare (362 to 651 pounds per acre) of cropland. Rates of fertilizer use exceed those reported for any Latin American country or dependency and were several times those reported for the United States. Larger fertilizer needs are likely with increasing demands for more intensive agricultural output.

The number of farmworkers dropped from 191,000 in 1950-54 to 135,000 in 1960-64 due to increased mechanization and, perhaps, more efficient labor (table 2). This resulted in an increase in land per farmworker from 3.2 to 5.3 hectares (7.9 to 13.1 acres) of total farmland and from 1.4 to 2.0 hectares (3.5 to 4.9 acres) of cropland between 1940 and 1964 (table 7). Further declines in agricultural labor are expected as a result of continuing mechanization of farming operations.

Yields of principal field crops reflect more intensive production in Puerto Rico than in countries with larger per capita agricultural land areas. For example, sugarcane output in Puerto Rico in 1960-64 was estimated at over 74 tons per acre, nearly three-fourths of that for Brazil and over twice the average yield for the United States. Tobacco yields, in the same period, were reported at 1.3 tons per acre, about 50

percent more than those in both the United States and Brazil. However, yields for other principal crops in Puerto Rico show varying comparisons with those in Brazil and the United States.

Production Trends

Agricultural production increased at a rate of 2.8 percent from 1955-59 to 1960-64, for a per capita production gain of 1.4 percent. Food output increased at approximately the same rate because of very rapid increases in output of livestock products which compensated for the small increase in crop production. Tree crop output increased three times as rapidly as did field crop output in this period.

Food production accounts for approximately 88 percent of net agricultural output. About two-thirds of the total agricultural output is from crops and one-third is from livestock products. Field crops account for about 80 percent of crop output and tree crops account for the remaining 20 percent.

The index of crop production increased from 101 to 109 between 1955-59 and 1960-64, or at a rate of 1.5 percent (1957-59 = 100) (table 8). The rate of increase in output of field crops was 1.1 percent as compared with 3.1 percent for tree crops. For the field crops, output increased for sugarcane, tomatoes, peppers, pineapples, and tobacco (table 9). Output of corn, sweetpotatoes and yams, yuca, dry beans, taniers, and cabbage declined. The production of most tree crops increased; gains in output of oranges, grapefruits, bananas, plantains, and coffee more than offset some declines for coconuts and avocados.

The harvested area for principal field crops decreased at an average rate of 4 percent in 1960-64. However, as a result of increased productivity, the index of yields increased at a rate of 5.3 percent during this period, and more than offset the decline in harvested area (table 8). Similar comparisons cannot be made for tree crops, but it is likely that comparable productivity gains occurred. Also, in view of the more permanent plantings, a decline in area for tree crops would apparently be less pronounced than that for field crops.

The index of livestock production increased from 95 in 1955-59 to 127 in 1960-64 (1957-59=100). Sharp increases in the output of each of the five livestock products included in the production index were reported. The most rapid output gains were reported for poultry meat. Production of poultry meat increased at a rate of 9 percent, while the rate of increase in output of eggs was 6.3 percent (table 9). Milk production increased from 232,000 to 318,000 tons in this period, or at a rate of 6.5 percent. Pork and beef production increased at a rate of 4 percent and 2.2 percent, respectively. Gains in livestock output probably are due to an increase in productivity of at least as much as, and probably more than, that reported for field crops. The small gain in beef output probably reflects the emphasis on dairying and the more extensive process of beef cattle production.

The outlook for agricultural production is for continuing declines in the land area available for agricultural use in view of the pressure for land for other uses. So far, increases in productivity appear to have more than offset the decline in land area. Productivity will probably continue to increase and may result in additional gains in both total and per capita farm output in the short run.

AGRICULTURAL TRADE

Puerto Rico's trade has increased rapidly since 1955. From 1950-54 to 1960-64, the value of total exports increased from \$237 to \$764 million while the value of

imports increased from \$376 to \$1,223 million (tables 10 and 11). Consequently, the trade deficit increased from \$139 to \$459 million. The increase in the deficit resulted from both increased consumption needs and larger imports of capital goods for developing the manufacturing and tourist industries. More than 97 percent of all exports and over 93 percent of all imports were accounted for by trade with the United States.

Agricultural trade in this period went from a surplus of \$34 million to a deficit of \$6 million, accounting for a substantial portion of the increase in the total trade deficit (tables 12 and 13). Increased domestic needs tended to restrict exportation and accelerate importation. The value of agricultural exports increased about one-tenth as rapidly as that of nonagricultural shipments; the share of total exports accounted for by agricultural exports decreased sharply from 70 to 30 percent. The value of farm imports rose at about one-third the rate of that of nonfarm purchases, and its share of the value of all imports declined from 38 to 24 percent.

Exports

The value of agricultural exports increased from \$166 to \$231 million from 1950-54 to 1960-64. Exports of sugar, coffee beans, and molasses declined while exports of tobacco, rum, and other agricultural exports increased. The following five agricultural commodities or commodity groups accounted for 90 percent of the total value of farm exports in 1960-64: sugar, 53 percent; tobacco, 29 percent; rum, 5 percent; coffee beans, 1 percent; and molasses, 2 percent.

Puerto Rico exports sugar to the mainland only; in 1960-64, the value of these exports was \$123 million. At present, both production quotas and export quotas are prescribed under U.S. legislation. Puerto Rico's initial production quota for 1968 was set at 1,034,892 tons (raw basis), which included 141,617 tons for consumption in the commonwealth and 893,275 tons for export to the mainland. Puerto Rico's mainland quota has decreased from the 1,201,120 tons prescribed in 1960, but still accounts for 17.6 percent of the U.S. domestic area initial quota for 1968. Puerto Rico's 1968 production quota ranked behind that for domestic beets and the quota set for Hawaii, but it exceeded the mainland cane quota and was many times that for the Virgin Islands. Puerto Rico has not been able to fill its quota, and sugar exports to the United States in 1960-64 were only 76 percent of the quota allocated.

Due to the preference which the island enjoys in the U.S. market, there is a large potential for increased exports. However, while increases in per capita consumption of sugar are not expected, increased needs due to population gains will probably more than offset the modest sugarcane output growth of recent years. Sugar production is actually declining as rum production grows. Consequently, the outlook is for a continued decrease in sugar exports.

Tobacco is both exported and imported, but the island exports more tobacco than it imports. The value of tobacco exports, all to the United States, increased from \$14 to \$66 million from 1950-54 to 1960-64. In this period, net tobacco exports increased in value from \$8 to \$24 million. Increased export earnings have resulted from gains in tobacco production permitting larger exports, an increase in the proportion of local output exported as tobacco products rather than as leaf tobacco, and the growth in leaf imports for processing and reexport. Larger exports of tobacco products, mainly cigars, have been possible as the result of United States increasing its demand and shifting to Puerto Rico as a source of supply. Export earnings are likely to continue to increase under present circumstances. However, future gains in net export earnings may increasingly depend upon Puerto Rico's advantageous position with respect to the cost of processing imported leaf, since local tobacco producers may be hard pressed to continue recent acceleration in gains and growing internal needs may require a larger share of the output.

Rum exports totaled \$10 million in 1960-64, almost three times their value in the early 1950's. Nearly all of the island's rum is exported to the United States; small amounts are sold to Canada and other places. With Puerto Rico's emphasis on industry, rum production and exportation are likely to continue upward at the expense of its sugar trade, which is probably less profitable even in the protected U.S. market. The United States will probably continue to take most of the output, in view of the customs union advantages and restricted competition from other producers in the U.S. market. It is worth noting that excise taxes on Puerto Rican tobacco and rum sold in the U.S. market revert to the island's treasury.

Coffee bean exports totaled only \$2 million in 1960-64, 33 1/3 percent less than their value in the early 1950's. Exports were about equally divided between the United States and Italy. Coffee production in Puerto Rico has increased significantly in recent years, but domestic use has increased more rapidly. Domestic needs will continue to increase, although per capita consumption may now be generally stabilized at about 5 kilograms per year. Puerto Rican coffee reportedly enjoys some type-preference in the world market, and present production trends and consumption levels may permit a modest increase in the coffee industry.

Molasses exports have stayed at about the same level for the past 15 years. About two-thirds of the total goes to the United States; the rest goes to the United Kingdom, Canada, the Netherlands, and other countries. Some decrease in production and export of molasses is probable in view of declining sugar output. Also, the likelihood of increased use of molasses in the mixed feed industry in Puerto Rico may further reduce exports. The United States will probably continue to be the main market for the island's molasses exports in view of demand and competition factors.

Puerto Rico exports (mostly to the United States) small quantities of a number of other agricultural commodities. These exports totaled \$24 million and accounted for 18 percent of total agricultural exports in 1960-64. The commodities include seasonal fruits and vegetables, flower and garden seeds, and plant material. The value of exports of these and other specialty products has increased to eight times that in the early 1950's. Shipments to the United States are likely to continue to increase as Puerto Rico turns to the production of specialized, high-value products as the result of the demand and competition for agricultural resources and production requisites.

The outlook is for continued gains in agricultural exports as increases in shipments of tobacco, rum, coffee, and miscellaneous products more than offset decreases in exportation of sugar and molasses. The growing demand from foreign intermediate markets presents a possible opportunity for Puerto Rico to greatly accelerate its exportation of agricultural commodities. The mainland will probably continue to be the major outlet for Puerto Rico's exports.

Imports

The value of agricultural imports increased from \$132 to \$237 million from 1950-54 to 1960-64. Almost 90 percent of the gain was attributable to growth in the eight principal commodities or commodity groups which constituted three-fourths of total imports in 1960-64. Increases in the quantity of tobacco imported for reexport and of meat and meat products imported for domestic consumption were the largest, 6 and 2 1/2 times, respectively.

In 1960-64, almost 83 percent of the total value of all imported meat and meat products was accounted for by imports from the United States. Small quantities were supplied by Argentina, Denmark, the Dominican Republic, Nicaragua, and other minor suppliers. The value of total imports of meat and meat products increased from \$19 to \$47 million from 1950-54 to 1960-64. Although red meat and poultry production has

increased very rapidly in recent years, it has not kept up with the increase in demand. It is likely, therefore, that the quantity of commodities imported will continue to increase.

As production has declined and demand has increased, Puerto Rico's supply of corn has become insufficient. The importance of corn as a food for human consumption is decreasing, but its use for livestock feed is increasing. With about 60 percent supplied by the United States, imports totaled \$5 million in 1960-64, more than double their value in the early 1950's. Other suppliers included Argentina and the Dominican Republic. Import increases may accelerate with the downtrend in local production and with the greater requirements arising from the growing output of livestock and livestock products.

Imports of dairy products totaled \$25 million in 1960-64, up 73 percent from the value in the early 1950's. Virtually all of these imports were supplied by the United States; the Netherlands supplied small quantities. Dairy imports include butter, cheese, dried skim milk, and dried whole milk required to supplement local output. If the island's dairy production continues to increase, imports may level off at about the current level even if total and per capita consumption go even higher.

Imports of tobacco have become larger than those of other farm commodities mainly because of the sharp increase in both local and intermediate demand. The value of these imports was \$43 million in 1960-64, compared with only \$6 million in the early 1950's. Practically all were from the United States. As suggested earlier, future gains in the import trade will hinge largely on the demand from intermediate markets for exports of tobacco products from Puerto Rico. Future trade in tobacco is expected to continue to increase in line with recent trends.

Puerto Rico imports all of its wheat and flour and rice and 93 percent of its pulses and lard from the United States. With the decline in per capita consumption, the volume of wheat and flour imported has remained at about the same level for the last 15 years. The lag in wheat and flour consumption may have been offset to some extent by the increased use of imported processed foods such as pasta and cake and flour mixes. Total and per capita wheat and flour consumption and imports of these commodities are expected to decline even more as consumers continue to shift to other foods. This trend could be partially offset by increased demand for locally produced wheat products.

Rice imports totaled \$26 million in 1960-64, as compared with \$25 million in 1950-54. As in the case of wheat, total and per capita rice consumption have declined because of the increased consumption of substitute products. Also, as with wheat, consumption of rice and imports of rice are expected to decline as consumers continue to substitute other foods for cereals.

In 1960-64, the value of imports of pulses totaled \$6 million, about one-fifth more than their value in the early 1950's. Both production and per capita consumption of pulses have declined as demand for other food products has replaced the demand for pulses. Imports may remain at about current levels if increases in population offset declines in per capita consumption and production.

Lard imports were valued at \$9 million in 1960-64. The volume imported has remained nearly constant since the early 1950's, as per capita consumption has declined and the production of animal fats in Puerto Rico has increased. If these trends continue, total lard consumption is likely to increase only nominally, and the amount imported will probably remain near the present volume.

The value of other agricultural imports reached \$69 million in 1960-64, a gain of nearly two-thirds. Imports of other commodities increased at a slower rate than

imports of the eight principal commodities or commodity groups. The United States is the principal supplier. In addition to potatoes, eggs, and fish, these imports included floral materials, field and garden seed, mixed feed, and livestock for breeding. Further gains in imports of these and similar items are likely, as living standards improve and as pressures mount for increased agricultural productivity and specialization.

As local output lags behind needs and as per capita consumption of most important commodities increases, importation of agricultural commodities is expected to continue to accelerate. Imports of meat and meat products, corn, and tobacco are expected to increase. Current import levels are expected to be maintained for dairy products, pulses, and lard; and decreases are likely for wheat and rice imports. Puerto Rico will probably continue to receive most of its imports from the United States because of advantages from the standpoint of competition and the customs union.

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Table 1.--Puerto Rico: Gross national product by sector of origin, and per capita distribution, averages 1950-64, annual 1960-65

Period	Sector of origin				Per capita distribution 2/							
	Manu- factur- ing	Trade	Govern- ment	Other	Total	Agri- culture	Nonagri- culture	Average	Rural	Urban	Average	
	-Million dollars-				-Dollars-							
Average:												
1950-54.	143	151	211	235	938	1,042	1,540	1,398	154	821	428	
1955-59.	253	224	267	362	1,306	1,314	2,278	2,047	155	1,133	576	
1960-64.	460	357	383	643	2,087	1,836	4,025	3,531	182	1,646	849	
1960	344	296	316	508	1,688	1,792	3,511	3,114	171	1,408	718	
1961	401	317	350	546	1,847	1,872	3,751	3,275	177	1,496	769	
1962	461	358	378	636	2,076	1,814	4,110	3,549	182	1,640	846	
1963	516	387	410	722	2,306	1,908	4,386	3,805	200	1,754	918	
1964	578	429	463	802	2,518	1,796	4,369	3,833	180	1,889	979	
1965	641	474	496	912	2,757	1,903	4,470	4,007	171	2,018	1,072	
Distribution 3/												
Average:												
1950-54.	21	15	23	25	100	75	110	100	36	192	100	
1955-59.	15	17	21	28	100	64	111	100	27	197	100	
1960-64.	11	22	18	31	100	52	114	100	21	194	100	
1960	13	20	19	30	100	58	113	100	24	196	100	
1961	13	22	19	29	100	57	115	100	23	195	100	
1962	12	22	18	31	100	51	116	100	22	194	100	
1963	12	22	18	31	100	50	115	100	22	191	100	
1964	10	23	17	32	100	47	114	100	18	193	100	
1965	9	23	18	33	100	47	112	100	16	188	100	
Rate of change												
Average:												
1950-54.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1955-59.	0.2	12.1	4.8	9.0	6.8	4.7	8.1	7.9	0.1	6.7	6.1	
1960-64.	4.0	12.7	7.5	12.2	9.8	6.9	12.1	11.5	3.3	7.8	8.1	
1960	7.7	14.7	5.0	11.5	10.1	18.1	8.4	10.9	6.9	8.8	8.8	
1961	4.5	16.6	7.1	10.8	9.4	4.5	6.8	5.2	3.5	6.3	7.1	
1962	3.8	15.0	8.0	16.5	12.4	-3.1	10.0	8.4	2.8	9.6	10.0	
1963	11.5	11.9	8.5	13.5	11.1	5.2	6.7	7.2	9.9	7.0	8.5	
1964	-9.2	12.0	10.9	11.1	9.2	-5.9	-0.4	0.7	-10.0	7.7	6.6	
1965	-4.1	10.9	10.5	13.7	9.5	6.0	2.3	4.5	-5.0	6.8	9.5	

1/ Agriculture, fisheries, and forestry. 2/ Based on population distribution in table 2. 3/ Per capita distribution relates to national average and is in effect an index.

Sources: (4), (9), and table 2.

Table 2.--Puerto Rico: Population and labor force, averages 1950-64, annual 1960-67

Period	Population					Labor force		
	Actual			Projected:		Agri- cultural	Nonagri- cultural	Total
	Rural	Urban	Total	Emigra- tion 1/	Total 2/			
-----1,000-----								
Average:								
1950-54.	1,294	900	2,194	49	2,679	191	480	671
1955-59.	1,293	975	2,268	45	3,209	153	485	638
1960-64.	1,338	1,120	2,458	10	3,770	135	455	591
1960	1,310	1,040	2,350	23	3,549	125	417	542
1961	1,323	1,078	2,401	14	3,660	134	430	564
1962	1,337	1,118	2,455	10	3,767	139	446	585
1963	1,353	1,160	2,513	1	3,880	142	464	606
1964	1,369	1,203	2,572	2	3,996	137	520	657
1965	1,384	1,249	2,633	8	--	124	564	688
1966	1,371	1,296	2,667	27	--	122	595	717
1967	1,352	1,345	2,697	28	--	120	631	751

Distribution								
-----Percent-----								
Average:								
1950-54.	59	41	100	--	--	28	72	100
1955-59.	57	43	100	--	--	24	76	100
1960-64.	54	46	100	--	--	23	77	100
1960	56	44	100	--	--	23	77	100
1961	55	45	100	--	--	24	76	100
1962	54	46	100	--	--	24	76	100
1963	54	46	100	--	--	23	77	100
1964	53	47	100	--	--	21	79	100
1965	53	47	100	--	--	18	82	100
1966	51	49	100	--	--	17	83	100
1967	50	50	100	--	--	16	84	100

Rate of change								
-----Percent-----								
Average:								
1950-54.	-0.2	2.1	0.7	12.7	3.4	n.a.	n.a.	n.a.
1955-59.	0.0	1.6	.7	-1.7	3.7	-4.3	0.2	-1.0
1960-64.	.7	2.8	1.6	-26.0	3.3	-2.5	-1.3	-1.5
1960	0.9	1.6	1.2	-43.9	3.3	-8.8	-2.0	-0.7
1961	1.0	3.6	2.2	-39.1	3.1	7.2	3.1	4.1
1962	1.1	3.7	2.2	-28.6	2.9	3.7	3.7	3.7
1963	1.2	3.7	2.4	-90.0	3.0	2.2	4.0	3.6
1964	1.2	3.7	2.3	100.0	3.0	-3.5	2.1	8.4
1965	1.1	3.8	2.4	300.0	--	-9.5	8.5	4.7
1966	-.9	3.8	1.3	237.5	--	-1.6	5.5	4.2
1967	-1.4	3.8	1.1	3.7	--	-1.6	6.1	4.7

1/ Net emigration, mainly to the United States. 2/ Assumes an absence of emigration, a gradual decline in the death rate, rising birth and fertility rates of the early 1940's until the present decade, and a subsequent decline in birth rates.

Sources: (1), (6), (2), (10), and Economic Research Service estimates.

Table 3.--Puerto Rico, Latin America, and United States: Estimated daily per capita consumption of calories, proteins, and fats 1/

Item	Units	Puerto Rico		Latin America		United States	
		Consump- tion	Standard	Consump- tion	Standard	Consump- tion	Standard
Calories	Number	2,950	2,450	2,570	2,555	3,190	2,650
Proteins:							
Animal	Grams	38	10	23	10	64	10
Animal and pulses	Grams	48	20	33	20	69	20
Other	Grams	31	40	33	40	26	40
Total	Grams	79	60	66	60	95	60
Fats	Grams	95	42	60	43	146	45

1/ Available for consumption at retail levels. Estimates are for 1959-60 for Puerto Rico and 1959-61 for Latin America and the United States.

Sources: (11) and Economic Research Service estimates.

Table 4.--Puerto Rico, Latin America, and United States: Per capita food consumption by major food groups 1/

Food group	Puerto Rico			Latin America <u>2/</u>			United States					
	Annual volume		Daily calories	Annual volume		Daily calories	Annual volume		Daily calories			
	Kilograms	Percent	Number	Kilograms	Percent	Number	Kilograms	Percent	Number			
Cereal products.	96	15.2	949	32.2	104	22.2	1,026	40.0	67	10.2	663	20.8
Starchy crops <u>3/</u>	116	18.4	250	8.5	114	24.3	344	13.4	49	7.4	100	3.1
Sugar.	44	6.9	467	15.9	36	7.7	375	14.6	49	7.4	502	15.7
Pulses <u>4/</u>	18	2.9	166	5.6	18	3.8	160	6.2	9	1.4	104	3.3
Other fruits & veg.	104	16.5	109	3.7	83	17.7	81	3.2	179	27.2	197	6.2
Fats and oils <u>5/</u>	18	2.9	419	14.2	9	1.9	201	7.8	31	4.7	654	20.5
Meat, fish & eggs	45	7.1	248	8.4	43	9.2	250	9.8	101	15.3	539	16.9
Milk and cheese.	190	30.1	339	11.5	62	13.2	128	5.0	174	26.4	431	13.5
Total <u>6/</u>	631	100	2,950	100	470	100	2,570	100	659	100	3,190	100

1/ Available for consumption at retail level. Estimates are for Puerto Rico and 1959-61 for Latin America and the United States. 2/ Weighted average. 3/ Includes potatoes, sweetpotatoes, yams, other tubers, cassava, bananas and plantains, and breadfruit. 4/ Includes peanuts, tree nuts, and cacao. 5/ Includes butter. 6/ Rounded to nearest 10 calories.

Sources: (11) and Economic Research Service estimates.

Table 5.--Puerto Rico: Estimated supply and utilization of principal agricultural products, 1960-64 average

Food group and commodity	Production			Supply			Imports			Utilization			Total 1,000 tons
	1,000 tons			Percent			1,000 tons			Percent			
	1,000 tons	Percent	1,000 tons	1,000 tons	Percent	1,000 tons	1,000 tons	Percent	1,000 tons	Percent	1,000 tons	Percent	
Grains	10	3	313	97	319	130	99	4	1	323			
Wheat <u>1/</u>	0	0	76	100	72	30	95	4	5	76			
Rice	0	0	139	100	139	57	100	0	0	139			
Corn	10	9	98	91	108	44	100	0	0	108			
Starchy crops	226	84	42	16	263	107	1	5	99	268			
Potatoes	negl.	negl.	42	100	42	17	100	0	0	42			
Sweetpotatoes <u>2/</u>	42	100	0	0	38	15	90	4	10	42			
Yuca	9	100	0	0	8	3	89	1	11	9			
Bananas	113	100	0	0	113	46	100	0	0	113			
Plantains	57	100	0	0	57	23	100	0	0	57			
Breadfruit	5	100	0	0	5	2	100	0	0	5			
Sugar <u>3/</u>	917	100	0	0	105	43	11	812	89	917			
Other fruits & veg.	300	100	0	0	264	108	88	36	12	300			
Pulses	2	17	27	93	27	11	100	0	0	27			
Fats and oils <u>4/</u>	11	19	45	81	43	20	86	7	13	56			
Lard	2	7	29	93	31	13	100	negl.	0	31			
Vegetable oils	<u>5/</u> 9	36	16	64	18	7	72	7	28	25			
Meat <u>6/</u>	37	38	60	62	97	40	100	0	0	97			
Beef and veal	15	58	11	42	26	11	100	0	0	26			
Pork	11	27	30	73	41	17	100	0	0	41			
Poultry	11	37	19	63	30	12	100	0	0	30			
Milk	318	58	<u>7/</u> 232	42	550	224	100	0	0	550			
Eggs	11	65	6	35	17	7	100	0	0	17			
Fish	2	3	75	97	77	31	100	0	0	77			
Tobacco	15	15	8	35	23	9	39	11	31	23			
Coffee beans	15	100	0	0	12	5	38	3	20	15			
Molasses	323	100	0	0	105	43	13	218	67	323			
Rum	11	100	0	0	2	1	18	9	82	11			

1/ Includes flour in wheat equivalent. 2/ Includes yams and taniars. 3/ Centrifugal. 4/ Excludes butter. 5/ Oil equivalent of local crop production. 6/ Carcass weight basis, including meat products. 7/ Includes the following milk equivalents with product weight in parentheses in 1,000 tons: butter, 84 (4); cheese, 80 (18); dried skim milk, 132 (12); and dried whole milk, 46 (6).

Sources: Tables 2, 9, 12, and 13 and Economic Research Service estimates.

Table 6.--Puerto Rico: Land use, selected census years, 1940-64, and estimate for 1966

Land use	Area				
	1940	1950	1960	1964	1966
	-1,000 hectares-				
Land in farms . . .	741	725	723	727	699
Cropland.	324	302	293	271	267
Sugarcane . . .	100	144	129	130	118
Coffee.	71	69	63	78	73
Tobacco	17	11	10	11	7
Other	136	78	91	52	70
Pasture & range .	333	312	312	314	314
Woodland & waste.	84	110	118	141	118
Other	149	165	167	163	191
Total.	890	890	890	890	890
	Distribution				
	-Percent-				
Land in farms . . .	83	81	81	82	79
Cropland.	36	34	33	31	30
Sugarcane . . .	11	16	15	15	13
Coffee.	8	8	7	9	8
Tobacco	2	1	1	1	1
Other	15	9	10	6	8
Pasture & range .	37	35	35	35	35
Woodland & waste.	10	12	13	16	13
Other	17	19	19	18	21
Total.	100	100	100	100	100
	Rate of change ^{1/}				
	-Percent-				
Land in farms . . .	n.a.	-0.2	-0.1	-0.1	-1.9
Cropland.	n.a.	-0.7	-0.3	-1.9	-0.7
Sugarcane . . .	n.a.	3.7	-1.6	0.2	-4.7
Coffee.	n.a.	-0.3	-0.9	5.5	-3.3
Tobacco	n.a.	-5.2	-0.9	2.4	-20.2
Other	n.a.	-5.4	1.6	-13.1	16.0
Pasture & range .	n.a.	-0.6	0	0.2	0
Woodland & waste.	n.a.	2.7	0.7	4.5	-8.5
Other	n.a.	1.0	0.1	-0.6	8.2

^{1/} From previous period shown.

Sources: (2), (3), (12), and Economic Research Service estimates.

Table 7.--Puerto Rico: Tractor and fertilizer availability and land use and productivity indicators, selected census years, 1940-64

Requisites and land use ratios	Unit	1940	1950	1960	1964	Rate of increase		
						1940-50	1950-60	1960-64
						Percent		
Farms	Number	55,519	53,515	n.a.	n.a.	-0.4	n.a.	n.a.
Tractors.	Number	723	1,626	1,916	4,423	9.5	1.7	23.3
Fertilizers:								
Nitrogen (N). . .	Tons	23,507	29,401	33,019	36,378	2.3	1.2	2.5
Phosphate (P ₂ O ₅). .	Tons	10,612	13,954	11,530	15,347	2.8	-1.9	7.4
Potash (K ₂ O). . .	Tons	19,142	22,077	22,214	28,319	1.4	0.1	6.3
Total.	Tons	53,261	65,432	66,763	80,044	2.1	0.2	4.6
Total land per capita:	Hectares	0.5	0.4	0.4	0.3	-1.7	-0.6	-2.2
Farmland per capita	Hectares	0.4	0.3	0.3	0.3	-1.9	-0.6	-2.1
Cropland per capita	Hectares	0.2	0.1	0.1	0.1	-2.4	-0.9	-4.1
Farmland per farm .	Hectares	13.3	13.5	n.a.	n.a.	0.1	n.a.	n.a.
Cropland per farm .	Hectares	5.8	5.6	n.a.	n.a.	-0.5	n.a.	n.a.
Farmland per farm- worker.	Hectares	3.2	3.4	5.8	5.3	0.6	5.5	-2.2
Cropland per farm- worker.	Hectares	1.4	1.4	2.3	2.0	0	5.1	-3.4
Farmland per tractor	Hectares	1,025	446	377	164	-8.0	-1.7	-18.8
Cropland per tractor	Hectares	448	186	153	61	-8.4	-1.9	-20.5

Sources: (5), (7), (9), (12), Economic Research Service estimates, and tables 2 and 6.

Table 8.--Puerto Rico: Indexes of area, yield, production, per capita production and population, selected 5-year averages 1955-64, and annual 1960-65 1/
(1957-59 = 100)

Category	1955-59	1960-64	1960	1961	1962	1963	1964	1965
----- <u>Index of area</u> -----								
Field crops <u>2/</u>	104	85	91	87	84	83	82	79
----- <u>Index of yields</u> -----								
Field crops <u>2/</u>	99	128	116	131	126	134	134	129
----- <u>Index of production</u> -----								
Field crops <u>2/</u>	103	109	106	114	106	111	110	102
Tree crops <u>3/</u>	92	107	91	109	119	103	112	106
All crops <u>2/3/</u>	101	109	103	113	109	110	110	102
Livestock products <u>4/</u>	95	127	111	120	129	134	139	144
Net agriculture <u>5/</u>	99	115	106	115	115	117	119	116
Net food <u>6/</u>	100	115	108	116	114	119	118	115
----- <u>Index of per capita production</u> -----								
Field crops <u>2/</u>	104	101	103	109	99	101	98	89
Tree crops <u>3/</u>	93	100	89	104	111	94	100	92
All crops <u>2/3/</u>	102	101	100	108	102	100	98	89
Livestock products <u>4/</u>	96	118	108	114	120	122	124	125
Net agriculture <u>5/</u>	100	107	103	110	107	107	106	101
Net food <u>6/</u>	101	107	105	111	106	108	105	100
----- <u>Index of population</u> -----								
Population.	99.1	107.4	102.7	104.9	107.3	109.8	112.4	115.1

1/ Weighted aggregative index using weights representing prices received by Puerto Rican farmers in the 1957-59 base period. 2/ Corn, sweetpotatoes, yams, yuca, beans, taniens, sugarcane, tomatoes, cabbage, peppers, pineapples, and tobacco. 3/ Coconuts, avocados, oranges, grapefruits, bananas, plantains, and coffee. 4/ Beef, pork, milk, poultry meat, and eggs. 5/ Excludes a feed deduction of 13 percent of the value of livestock production. 6/ Excludes coffee and tobacco.

Sources: (2), (3), and (4).

Table 9.--Puerto Rico: Production of principal field and tree crops and livestock products, averages 1955-64, annual 1960-65

Crop and product	1955-59	1960-64	1960	1961	1962	1963	1964	1965
	-1,000 tons-							
Field crops:								
Corn	19	10	15	9	9	8	8	8
Sweetpotatoes & yams	31	26	27	26	25	25	25	25
Yuca	9	6	6	6	6	6	6	6
Beans, dry	5	2	2	2	2	2	2	2
Taniers.	18	16	14	15	16	18	16	16
Sugarcane.	8,733	9,132	9,069	9,752	8,763	9,184	8,892	7,990
Tomatoes	9.5	15.4	10.0	10.1	16.2	20.5	20.0	20.0
Cabbage.	3.0	2.9	3.2	3.4	2.9	2.6	2.2	2.5
Peppers.	3.4	3.5	3.2	3.2	3.6	3.5	4.0	4.0
Pineapples	30	53	42	50	52	59	60	62
Tobacco.	12.1	14.8	12.5	13.9	15.6	14.6	17.2	18.0
Tree crops:								
Coconuts	9.4	8.7	10.6	9.9	7.5	8.4	7.0	7.5
Avocados	4.9	4.3	4.0	4.2	3.8	4.3	5.1	5.1
Oranges.	28	31	27	29	32	33	33	34
Grapefruit	11	14	13	14	16	13	14	15
Bananas.	103	113	115	115	115	111	107	106
Plantains.	46	57	53	54	60	67	53	60
Coffee	13	15	12	16	18	14	17	15
Livestock products:								
Milk	232	318	282	303	324	333	349	360
Beef	13.6	15.2	13.3	13.5	15.0	16.1	18.2	20.0
Pork	9.3	11.3	10.6	10.9	11.4	11.4	12.0	12.0
Poultry meat	6.9	10.6	9.3	10.6	11.0	11.6	10.4	11.0
Eggs	7.9	10.7	8.7	9.8	11.2	12.0	11.9	12.0

Sources: (2) and (3).

Table 10.--Puerto Rico: Value of total merchandise exports by destination, averages 1950-54, annual 1960-64

Country and region	1950-54	1955-59	1960-64	1960	1961	1962	1963	1964
	- - - - - Million dollars - - - - -							
Canada	0.2	0.8	1.3	1.3	1.4	1.3	2.0	0.7
Mexico	negl.	.4	.1	negl.	negl.	.1	.2	.3
Central America. . . . .	.1	.8	.4	negl.	.2	.6	.8	.6
Cuba	1.2	1.1	.2	.6	.1	.1	0	0
Dominican Republic	2.1	3.9	3.2	1.7	1.0	1.9	4.8	6.6
French West Indies . . . . .	.1	.3	.8	.3	.5	.6	1.3	1.4
Netherlands Antilles . . . . .	.6	.8	.6	.3	.4	.7	.8	.9
Windward & Leeward Islands . . . . .	.4	.8	.6	.2	.4	.7	.8	.8
Other Caribbean. . . . .	.4	.6	1.3	.6	.9	2.1	1.2	1.7
Caribbean.	4.8	7.5	6.7	3.7	3.3	6.1	8.9	11.4
Venezuela.	2.6	.9	.7	.7	.8	.5	.7	.8
Other South America. . . . .	.6	.3	.3	.3	.4	negl.	.5	.4
South America.	3.2	1.2	1.0	1.0	1.2	.5	1.2	1.2
Western Hemisphere ^{1/}	8.3	10.7	9.5	6.0	6.1	8.6	13.1	14.2
Belgium & Luxembourg . . . . .	.4	.3	1.0	2.6	1.6	negl.	.6	.2
France	negl.	1.8	.4	1.0	negl.	.2	.3	.6
Italy. . . . .	.2	.6	1.0	1.8	.1	1.0	.8	1.1
Japan. . . . .	.2	.9	.2	.6	.4	.4	negl.	.2
Macao.	0	0	.6	0	0	0	0	3.0
Netherlands. . . . .	.3	.8	1.4	.9	.7	.4	3.0	1.9
Sweden . . . . .	.1	.6	1.3	.4	0	.1	2.7	3.3
United Kingdom	2.5	2.0	1.1	.8	1.3	.1	1.6	1.9
West Germany . . . . .	.1	.5	.7	.7	.8	.5	1.2	.4
Other.	6.9	.5	3.3	2.7	2.2	3.8	3.5	3.0
Eastern Hemisphere	10.7	8.0	11.0	11.5	7.1	6.5	13.7	15.6
United States ^{2/}	218.2	414.6	743.5	594.3	674.2	742.1	818.5	888.4
Total	237.2	433.3	764.0	611.8	687.4	757.2	845.3	918.2

^{1/} Excluding United States. ^{2/} Total for 50 States and U.S. Virgin Islands.

Source: (8).

Table 11.--Puerto Rico: Value of total merchandise imports by origin, averages 1950-64, annual 1960-64

Country and region	1950-54	1955-59	1960-64	1960	1961	1962	1963	1964
----- Million dollars -----								
Canada	7.9	11.5	14.1	13.7	15.3	13.7	14.3	13.3
Mexico	2.0	4.1	2.1	3.8	1.2	1.5	2.0	1.8
Honduras	negl.	.2	1.1	.8	1.1	.5	2.0	1.2
Nicaragua . . . . .	.5	.4	2.0	.6	1.0	1.8	3.6	3.1
Other . . . . .	.3	.2	.7	.3	.5	.4	1.0	2.1
Central America . . . . .	.8	.8	3.8	1.7	2.6	2.7	6.6	6.4
Cuba . . . . .	.8	1.1	.7	1.3	1.3	.6	0	.3
Dominican Republic	4.2	2.9	4.1	4.3	4.0	4.6	3.6	4.1
Haiti . . . . .	.1	0	.6	.1	.3	.7	.9	1.2
Netherlands Antilles	4.6	4.2	7.2	6.2	9.9	9.6	5.3	5.1
Trinidad and Tobago . . . . .	.2	.2	1.5	.5	.5	.4	2.0	4.2
Other . . . . .	.1	.2	.3	.2	.2	.2	.5	.5
Total Caribbean	10.0	8.6	14.4	12.6	16.2	16.1	12.3	15.4
Argentina . . . . .	.5	1.1	2.2	1.7	1.3	1.4	2.8	3.6
Brazil . . . . .	.3	.4	1.2	.8	.8	1.0	1.2	2.3
Colombia . . . . .	.2	.3	1.3	1.0	.9	1.1	1.4	1.9
Peru . . . . .	.1	.1	2.1	.5	.6	1.5	5.0	2.9
Venezuela	1.0	31.1	72.0	60.4	63.6	69.1	78.8	88.1
Other . . . . .	.8	.5	1.7	2.3	2.4	1.5	1.3	.9
South America	2.9	33.5	80.5	66.7	69.6	75.6	90.5	99.7
Western Hemisphere ^{1/}	23.6	58.5	114.9	98.5	104.9	109.6	125.7	136.6
Belgium & Luxembourg	2.8	4.2	10.0	7.1	9.7	10.7	11.1	11.3
Denmark . . . . .	.2	.5	2.7	1.9	2.1	3.2	3.2	3.3
France . . . . .	.9	2.1	5.4	5.3	3.4	5.0	5.2	7.2
Hong Kong	negl.	.2	1.0	.7	1.0	.7	1.2	1.2
India	2.6	.8	.6	.3	.2	.5	1.0	.8
Italy . . . . .	.6	1.1	3.5	1.9	2.1	4.0	4.3	4.5
Japan	negl.	1.7	9.0	4.7	5.4	6.5	11.7	16.6
Netherlands	1.0	1.9	3.9	3.3	6.1	3.2	3.8	3.3
Pakistan . . . . .	.2	.4	.6	.4	.5	.8	1.0	.5
Spain	1.6	2.3	6.1	3.1	5.1	7.9	6.3	7.9
Sweden . . . . .	.3	.5	.8	.7	.6	.8	.9	1.0
United Kingdom	1.2	3.5	9.8	7.3	13.2	12.5	7.3	8.5
West Germany	7.0	5.7	11.9	12.2	7.3	11.2	13.8	14.9
Other	1.6	3.2	5.1	2.0	2.1	1.7	7.4	7.2
Eastern Hemisphere	20.0	28.1	70.4	50.9	58.8	68.7	78.2	88.2
United States ^{2/}	332.9	604.5	937.0	760.8	931.3	907.9	955.8	1129.0
Total	376.5	691.1	1122.3	910.2	1095.0	1086.2	1159.7	1353.8

^{1/} Excluding United States. ^{2/} Total for 50 States and U.S. Virgin Islands.

Source: (8).

Table 12.--Puerto Rico: Agricultural exports by commodity and destination, averages 1950-54, annual 1960-64

Item	1950-54	1955-59	1960-64	1960	1961	1962	1963	1964
----- Million dollars -----								
<u>Sugar, raw and refined</u>								
United States.	128	118	123	124	118	109	140	124
West Germany	2	0	0	0	0	0	0	0
United Kingdom	3	0	0	0	0	0	0	0
Other.	4	0	0	0	0	0	0	0
Total	137	118	123	124	118	109	140	124
<u>Tobacco 1/</u>								
United States.	14	25	66	39	50	65	84	94
<u>Coffee beans</u>								
United States.	3	2	1	1	negl.	negl.	1	3
Italy.	negl.	negl.	1	2	negl.	1	1	1
Other.	negl.	1	negl.	1	negl.	negl.	negl.	negl.
Total	3	3	2	4	negl.	1	2	4
<u>Rum</u>								
United States.	4	6	9	7	8	9	12	11
Canada	negl.	negl.	1	negl.	1	1	1	1
Other.	negl.	negl.	negl.	negl.	negl.	negl.	1	1
Total	4	6	10	7	9	10	14	13
<u>Molasses</u>								
United States.	5	4	3	2	4	4	3	4
Canada	negl.	negl.	negl.	0	negl.	1	1	0
Netherlands.	negl.	negl.	negl.	negl.	negl.	0	1	negl.
United Kingdom	negl.	1	1	negl.	1	negl.	1	1
Other.	negl.	negl.	negl.	1	0	0	1	0
Total	5	5	4	3	5	5	7	5
Other agricultural	3	13	24	38	41	10	90	24
Total agricultural.	166	170	231	216	223	200	253	264
Other exports.	71	263	533	396	464	557	592	654
Total exports.	237	433	764	612	687	757	845	919
----- Percent -----								
Agricultural as percentage of total.	70	39	30	35	36	26	30	29
----- Thousand tons -----								
<u>Sugar, raw and refined</u>								
United States.	950	846	812	858	977	738	797	692
West Germany	16	0	0	0	0	0	0	0
United Kingdom	24	0	0	0	0	0	0	0
Other.	35	0	0	0	0	0	0	0
Total	1,025	846	812	858	977	738	797	692
<u>Tobacco 1/</u>								
United States.	9	9	11	10	10	11	11	12
<u>Coffee beans</u>								
United States.	3	1	2	2	negl.	1	1	5
Italy.	negl.	negl.	1	2	negl.	1	1	1
Other.	1	1	negl.	1	negl.	negl.	negl.	negl.
Total	4	2	3	5	negl.	2	2	6
<u>Rum</u>								
United States.	4	6	10	7	8	9	12	12
Canada	negl.	1	1	negl.	1	1	1	1
Other.	negl.	negl.	negl.	negl.	negl.	negl.	1	1
Total	4	7	11	7	9	10	14	14
<u>Molasses</u>								
United States.	230	142	139	123	221	167	81	105
Canada	negl.	negl.	12	0	3	32	23	0
Netherlands.	negl.	negl.	19	30	2	0	52	11
United Kingdom	9	31	33	27	72	3	32	33
Other.	negl.	11	14	53	0	0	21	0
Total	239	184	217	233	298	202	209	149

1/ Leaf basis, including products converted to leaf equivalent. Source: (8).

Table 13.--Puerto Rico: Agricultural imports by commodity and origin, averages 1950-64, annual 1960-64

Item	1950-54	1955-59	1960-64	1960	1961	1962	1963	1964
----- Million dollars -----								
<u>Meat & meat products 1/</u>								
United States.	17	26	39	32	34	37	42	49
Argentina.	0	1	1	1	1	1	1	1
Denmark.	0	1	2	1	2	3	3	3
Dominican Republic	1	1	1	1	2	1	0	0
Nicaragua.	0	0	2	0	1	1	3	3
Other.	1	1	2	3	1	1	2	4
Total	19	30	47	38	41	44	51	60
<u>Corn</u>								
United States.	0	1	3	2	2	3	4	6
Argentina.	0	negl.	negl.	negl.	negl.	negl.	negl.	1
Dominican Republic	1	1	1	1	1	1	1	0
Other.	1	1	0	0	0	0	0	0
Total	2	3	5	3	3	4	6	7
<u>Dairy products 2/</u>								
United States.	14	20	25	22	21	25	27	31
Netherlands.	1	1	1	1	2	1	1	1
Total	15	21	26	23	23	26	28	32
<u>Tobacco 3/</u>								
United States.	6	17	42	31	35	48	39	56
Cuba	0	0	0	0	1	1	0	0
Dominican Republic	0	0	1	0	0	1	2	3
Total	6	17	43	31	36	50	41	59
<u>Wheat 4/</u>								
United States.	6	7	6	5	6	6	7	7
<u>Rice</u>								
United States.	25	26	26	30	25	24	28	23
<u>Pulses</u>								
United States.	5	5	6	6	5	6	5	7
Other.	0	0	0	0	0	0	1	0
Total	5	5	6	6	5	6	6	7
<u>Lard</u>								
United States.	9	9	9	8	10	9	9	8
Other agricultural	42	55	69	72	65	66	67	73
Total agricultural.	132	173	237	216	214	235	243	276
Other imports.	216	518	769	596	776	740	917	1,078
Total imports.	348	691	1,006	812	990	977	1,160	1,354
----- Percent -----								
Agricultural as percentage of total.	38	25	24	27	22	24	21	20
----- Thousand tons -----								
<u>Meat & meat products 1/</u>								
United States.	24	36	51	45	45	49	52	63
Argentina.	0	1	1	1	1	1	2	1
Denmark.	0	negl.	3	2	2	3	3	3
Dominican Republic	3	1	1	3	2	1	0	0
Nicaragua.	0	0	2	0	1	2	4	3
Other.	1	1	2	1	2	0	3	5
Total	28	39	60	52	53	56	64	75
<u>Corn</u>								
United States.	0	10	72	49	48	59	80	125
Argentina.	0	2	8	6	5	3	7	19
Dominican Republic	14	18	12	15	18	16	9	0
Other.	8	5	6	5	6	6	5	7
Total	22	35	98	75	77	84	101	151

--Continued

Table 13.--Puerto Rico: Agricultural imports by commodity and origin, averages 1950-64, annual 1960-64--Continued

Item	1950-54	1955-59	1960-64	1960	1961	1962	1963	1964
	----- <u>Thousand tons</u> -----							
<u>Dairy products</u> ^{2/}								
United States.	188	192	216	199	207	215	223	237
Netherlands.	8	11	16	14	22	20	11	14
Total	196	213	232	223	229	235	234	251
<u>Tobacco</u> ^{3/}								
United States.	2	4	7	6	6	6	7	8
Cuba	0	0	0	0	1	0	0	0
Dominican Republic	0	0	1	0	0	1	1	2
Total	2	4	8	6	7	7	8	10
<u>Wheat</u> ^{4/}								
United States.	62	69	76	60	80	73	85	86
<u>Rice</u>								
United States.	134	139	139	155	121	116	128	109
<u>Pulses</u>								
United States.	23	26	24	25	25	29	19	24
Other.	1	3	3	3	3	2	3	2
Total	24	29	27	28	28	31	22	26
<u>Lard</u>								
United States.	25	27	29	29	28	30	29	31

^{1/} Product weight. ^{2/} Fresh milk basis, including products converted to milk equivalent. ^{3/} Leaf basis, including products converted to leaf equivalent. ^{4/} Includes flour in wheat equivalent.

Source: (8).

