

Draft

PRODUCTION AND CONSUMPTION PATTERNS FOR FOOD IN JAMAICA

Policy Paper 2a

July 1988

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Production and Consumption Patterns for Food in Jamaica

1. Introduction and Overview

This paper is a review and summary of patterns and trends in consumption, production, imports and exports, over the period 1970-1986, of major food items in Jamaica. The paper is divided into five sections. The first section provides an historical overview of domestic food production and consumption policy and places the agricultural sector in context with the rest of the economy. Patterns and trends of food production and consumption are presented in section 2. Special attention is paid to reconciling consumption data from the 1984 Household Expenditure Survey with 1984 production data from the Ministry of Agriculture. Food imports and food exports are discussed in sections 3 and 4, respectively. The focus in these sections is on the impact of world prices and policies on imports and exports. Conclusions and implications are contained in the final section.

1a. The economy and the agricultural sector -- production

The historical record of the rise and decline of the Jamaican economy, since independence has been well documented (Pollard and Graham). The Jamaican economy (as measured by real GDP), as a whole, experienced positive economic growth up to 1974, when a downturn in activity occurred. In contrast, agricultural growth

has been slow and stagnant over much of the past twenty-six years and only picked up over the period 1976-1978 and 1982-84 at the time other sectors were recording a decline or no growth (NIPA). Over the period 1980-83, the economy began to realize positive real rates of growth, but declined again over the period 1983-85. Recent data reveals that positive growth is now being achieved for the economy, while agricultural growth has been declining since 1984. These differential growth patterns raise two interesting questions. First, why has agriculture grown at a slow rate? and second, why does agriculture experience growth when the rest of the economy does not?

Over time one would expect slow growth in agriculture vis-a-vis other sectors of the economy if demand for agricultural products is income inelastic. Thus as income increases the demand for food increases less than the increase in income and agricultural growth slows. Agricultural growth observed in Jamaica does not support this argument, since its growth rate was lower than could be explained through this factor alone.

Some initial answers can be arrived at by disaggregating agricultural GDP into its various components: export crops, domestic crops and livestock. Export agriculture grew until 1966, but declined over the rest of the 1960's and into the 1970's and 1980's. Growth of domestic food crops was constant over much of the 1960's, experienced a jump from 1969-1971 and then fluctuated over the 1970's until a sharp rise in 1977-1978 and again in 1982-1984 and has been declining since then. Livestock GDP grew until 1973, then declined during the rest of

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the 1970's until growth reappeared from 1982-1984. As in the case of domestic food crops, livestock production has declined since 1984.

Shares of the agricultural sector and various components in GDP support the evidence provided by the growth rates. From 1962-1977, agriculture averaged 9.1 percent of the national GDP, but declined to an average of 8.0 percent during the period 1977-1984. Data for 1976 and 1986 are given in Table 1. Agriculture has marginally increased its share, while other productive sectors' shares have declined. The service sector has increased its share in light of these declines in the productive sectors. Over this 10 year period, changes were also occurring within the agricultural sector. Export agriculture experienced a marked decline in its share within the agricultural sector, while domestic food crop and livestock production grew to account for 78 percent of all agricultural output. This is in marked contrast to the 1960's when export agriculture accounted for almost one-third of agricultural output. Jamaica is unique in this respect, in that most (if not all) Latin American countries promoted agricultural exports during the 1970's largely at the expense of domestic food production (De Janvry, 1981).

These findings are supported by the 1968 and 1978 agricultural census data which reveal that farmers moved out of export crop enterprises and into domestic oriented enterprises between 1961 and 1968 and 1968 and 1978. The census data indicate that small farmers moved into domestic food crop production, while large farmers moved into livestock activities. Further, most of the domestic food producers are small farmers

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Table 1. A. Distribution of Gross Domestic Product by Selected Sectors

Sector	1976	1986
Agriculture	7.8%	8.5%
Mining	6.2%	5.4%
Manufacturing	18.8%	16.3%
Trade	16.7%	15.4%
Services	30.0%	37.7%
Value of GDP in J\$ '000	2,013,589	1,876,455

B. Distribution of Agricultural GDP by Sector

Sector	1976	1986
Export	22.94%	14.45%
Domestic	43.13%	51.52%
Livestock	27.14%	26.99%
Fishing	6.80%	7.05%
Value of Agriculture GDP in J\$ '000	157,718	159,575

with less than 5 acres of land relying primarily on farming as a major source of income.

1b. Food Consumption Patterns

An overview of food consumption patterns of Jamaicans is presented in Table 2. In 1976, food consumption comprised one-third of consumer expenditures, while in 1986 it comprised 28 percent. The largest expenditure was on bread and cereals, followed by fruits, vegetables and legumes, meat, and root crops. Assuming that 50 percent of all meat and fish comes from domestic sources, 41 percent of all food consumed in 1976 and 46 percent of all food in 1986 came from domestic sources. Cereal and dairy products, which are primarily imported, comprised 44 percent of food expenditure in 1976 and 40 percent of food expenditure in 1986. Thus, policies designed to reduce dependence on food imports have failed to do so. This is not to imply that Jamaica should achieve food self-sufficiency and import substitution of certain food groups. However, failure to do so puts a strain on the foreign exchange reserves at a time when traditional exports such as bauxite/alumina, sugar and bananas are in a state of decline.

The pattern of food imports is delineated in Table 3. In 1976, food imports were 53.5 percent of the value of all consumer good imports, 18.2 percent of the value of raw material imports and 19.8 percent of the value of all imports. These shares were maintained in 1986, except that the value of food imports of all has dropped to 49.0 percent. Fuel, in contrast, has maintained a share of 40 percent of raw material imports and 20 percent of all

Table 2. Distribution of Imports by Selected Categories

Category	1976	1986
Food		
% of consumer imports	53.5	49.0
% of raw imports	18.2	17.1
% of total imports	19.8	18.3
Relative share of consumer food imports		
Meat	17.7%	13.8%
Dairy	8.5%	8.1%
Fish	10.1%	11.4%
Cereal	11.1%	8.9%
Fruits and Vegetables	2.5%	0.5%
Sugar	0.4%	3.5%
Coffee, Tea, Cocoa	0.4%	0.3%
Beverages	0.8%	1.8%
Other	2.0%	0.7%
Fuel		
% of raw material imports	39.6	40.1
% of total	22.3	20.2
Total value of imports J\$ '000	829,785	5,322,277
Total value of consumer imports J\$ '000	149,499	1,088,552
Total value of raw material imports J\$ '000	467,643	2,677,286

Table 3. Distribution of Final Consumption of Food by Category

Category	1976	1985
Breads and Cereal	31.42%	32.56%
Meats	13.36	14.64
Fish	3.60	4.16
Dairy	12.53	7.58
Oils and Fats	3.97	4.44
Fruits, Vegetables and Legumes	16.70	20.78
Root Crops	10.48	11.49
Sugar	3.90	2.25
Coffee, Tea, Cocoa	0.97	0.48
Other	3.07	1.63
Value of Food Consumption Expenditure J\$ '000	500,895	485,936
Value of Final Consumption Expenditure J\$ '000	1,504,295	1,722,626

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imports. The ranking of food imported directly for sale as consumer goods, by share of value in 1976, is: 1) meat 2) cereal 3) fish 4) dairy 5) fruits and vegetables 6) sugar and in 1986: 1) meat 2) fish 3) cereal 4) dairy 5) sugar 5) fruits and vegetables. Noticeable declines in relative shares are noted for meat, cereal, and fruits and vegetables, while sugar has increased dramatically.

1c. Food Policy

Agricultural policies in Jamaica that have been directed at increasing output and improving equity among small domestic food producers have been carried out under the auspices of the Ministry of Agriculture. However, this has been less so since 1982 with the introduction of the Agro 21 program. The primary emphasis of these policies have been to develop rural infrastructure and subsidize farm practices that would help modernize Jamaican agriculture. It was also expected that this improved infrastructure and modernization would lead to increases in output and reduce Jamaica's need for food imports. In the 1960's examples of such policy efforts were loans and subsidies for water tanks, farm houses, and soil conservation and operational subsidies for the use of fertilizer. Past researchers have commented that funds from such programs have been misused (i.e., diverted for farm household consumption) and that these programs have done little to increase farm output (Stone (1974); Jefferson (1972); Pollard and Graham (1985)).

Food policy in the late 1970's was characterized by heavy government intervention in both production and consumption.

Government policy was designed to achieve self-sufficiency in food. Examples of such efforts were the Land Lease Program which was set up to divide large and idle holdings into smaller parcels to encourage the smaller farmer and provide employment; and the Crop Lien Program which was designed to increase production by providing cheap credits to farmers. The impact of these policies on agricultural production were small and do not appear to have had a long reaching impact on the agricultural sector (Pollard and Graham).

On the consumption side, food policy consisted of retail price controls on basic food staples such as rice, flour, milk, cornmeal, and chicken. At the same time, the government, through the Jamaica Trading Corp. and by foreign exchange rationing, controlled the level of importation of these and other food items. The results of foreign exchange rationing, coupled with the price controls were that in many cases shortages occurred and consumers paid prices higher than the maximum price. In other cases, shortages caused consumers to switch to close domestically produced substitutes. This increase in demand for domestic food crops raised prices at both the retail and farm level and generated a farm supply response that explains a large portion of the increase in output in the late 1970's.

Agricultural policy in the 1980's has consisted of two themes. One has been the dismantling and restructuring of the policies of the 1970's such as the renaming of the Crop Lien Program (now the Small Farmer Loan program) and attempting to convert Land Lease farmers to freehold status. The other has been the Agro-21 program. This program, administered through a

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separate secretariat, is to foster overall economic growth through reliance on private investment in the agricultural sector. The Agro-21 secretariat had identified various crops and agricultural enterprises that can provide additional employment and either save or earn necessary foreign exchange. It is difficult to acquire information as to the exact status of Agro-21 projects, however available data in 1985 revealed that 30-40 percent of the set targets have the potential to be reached. On a more skeptical note, is the poor history and bankruptcy of the Spring Plains operation and the dismal performance of Grace-Kennedy's Halse-Hall winter vegetable project (GK). The GK project was technically efficient in that yields for winter vegetables comparable to Texas, Florida, California, and Mexico were achieved. The problem was that the prices received did not allow for a profit given the high cost of inputs (mostly imported) and the corresponding low output price.

2. Domestic Food Crops

2a. Production

The details in trends in production, consumption, exports, and imports for over 70 commodities are contained in two previous background papers (#1 and #3). In this paper only 17 items are selected and are only briefly summarized here. These 17 items were selected based on their relative importance in the 1984 Household Expenditure Survey and are: beef, pork, chicken, powdered milk, wheat flour (counter), wheat flour (baking), rice, cornmeal, coconut oil, vegetable oil, potatoes, yams, tomatoes, legumes, green bananas, oranges, and grapefruits.

In analyzing production and supply trends, we used 1.8 percent as a benchmark to determine if supply was keeping up with the growth of domestic demand. Growth in demand is equal to the changes in population growth plus changes in real income. However, given that real income has been negative or constant over most of the 1970's and 1980's, population growth has been the determining factor. Irish potato, Negro and Tau Yam, skim milk powder, edible oils, beef, and pork are the commodities where supply has been growing less than 1.8 percent. Beef production and edible oil production has grown less than increases in demand perhaps due to the level of imported beef and refined oil (which has averaged 20 to 40 percent). The decline in skim milk powder has been met by an increase in locally produced fresh milk. The supplies of other commodities, including other types of yams and sweet potatoes, have been growing by more than 1.8 percent. It was noted above that agricultural policy initiatives have done little to promote production. What then has been responsible for supply keeping up with and/or surpassing demand? One explanation, reported in Background Paper #3 and based on econometric analysis of supply, is that the relative profitability of domestic food production is a major determinant in the level and growth of local food production. Specifically, before 1975 an overvalued exchange rate and liberal food import policy depressed real prices of domestic food products. Hence, part of the low growth of this subsector in the early part of the decade can be explained by low product prices. After 1975, real farmgate prices were determined by increases in domestic demand

that could not be satisfied by cheap food imports, due to the more strict import control regime of the late 1970's. A similar result holds in the 1980's, where the price responsiveness of farmers determines the level of domestically produced food.

2b. Reconciliation of Production and Consumption of Data

An issue raised concerning the analysis of these data is the reliability of these data. This issue is discussed fully in Background Paper #1. In this paper, we attempt to reconcile Ministry of Agriculture estimates with data from the 1984 Household Expenditure survey. For each commodity, we take the per capita consumption per week per household and adult equivalent, respectively and convert consumption to an annual total by using a population value of 2.2875 million people. For example, the per capita beef consumption was found to be 0.43 lbs. per household. This value was multiplied by 52 to get the annual per capita value and then multiplied by 2.2875 million to get the all island annual value. The results are put forth in Table 4. The disappearance value (production + imports - exports) exceeds the survey generated value in the case of beef, pork, poultry, flour, cornmeal, potatoes, yams, and tomatoes. Part of this divergence may be due to a seasonality factor. Differences in yams, potatoes and tomatoes may also occur due to post harvest lost and/or waste since MOA estimates are of production, not of the amount harvested. However, this would indicate that the level of post-harvest loss exceeds 30 percent in these crop lines and would indicate that policymakers assumptions of riskiness and problems of producing these crops by

Table 4. Comparison of Disappearance and Consumption Data

Food Item	Disappearance (tons)	Consumption	
		Household (tons)	Adult Equivalent (tons)
Beef	40160	25575	30928
Pork	15885	10111	11895
Poultry	108353	76129	92188
Flour	94891	57097	69587
Rice	53308	61855	74940
Cornmeal	34105	27954	33902
Coconut Oil	2199	5924	7109
Soybean Oil	6166	5332	6516
Potatoes	47471	27954	33902
Yams	157291	81483	98134
Green Bananas	11908*	201026	244442
Legumes	6293	5948	7137
Tomatoes	30664	21412	26169
Oranges	12960	45202	54122
Grapefruits	9000*	17248	20816

*Export quantity only

small farmers are indeed prevalent.

The disappearance value is less than the consumption value in the case of rice, oranges, bananas, and grapefruit. In the case of fruits, the true production value is unknown and the figure for disappearance is only the export quantity. The data indicate that these fruits are today produced largely for the domestic market and not for the export market as in the 1960's.

Noteworthy is that the estimated consumption of bananas is equal to the amount exported in the early 1960's. However, the quality of the fruit required for the export market is higher than that of the local market. Hence, more fruit is directed to the local market given that there is the possibility of rejection by the parastatal buyers and higher prices paid on the local market. The result for rice (assuming the data are correct) indicates that families stockpile rice and/or a seasonality factor is present.

2c. Consumption

Consumption patterns of domestic food crops have been summarized above. It was shown that root crops and fruits and vegetables make up 33 percent of consumer expenditure and that 46 percent of consumer expenditure is spent on food items produced domestically. Specific consumption data is presented in Background Paper #4. Briefly, the main findings are that households with higher incomes and those in Kingston consume, on average, more beef, poultry, pork, and staples such as rice, cornmeal, wheat flour (baking) and vegetable oil. Households with lower incomes and those in rural areas recorded higher levels of per capita consumption, on average, of root crops,

green bananas, wheat flour (counter) and legumes.

This consumption pattern indicates that the demand for much of the domestically produced food crops declines as incomes rise and that as income increases so does the demand for imported food products that cannot or are not being produced in Jamaica. This raises two issues. The first is whether it is advisable to undertake an import substitution program to grow rice, corn, wheat, and soybean. Cost studies and technical analyses on this subject suggest that Jamaica would do better to earn foreign exchange from other activities and import these commodities than produce them locally. However, from a perspective of food security, the economic benefits may outweigh the financial costs of promoting rice, corn and soybean production. Wheat cannot be grown in Jamaica.

The second issue is whether it is advisable to import substitute locally produced food crops that are near substitutes for imported cereals and oils. This depends on the degree to which domestic urban consumers will easily shift their consumption habits from imported foodstuffs to local products. Empirical estimates of the tradeoff between locally produced food and imported foodstuffs indicate that small price changes associated with temporary import constraints, depreciation of the exchange rate and/or foreign exchange rationing will not lead to substantial changes in demand for local foodstuffs (Pollard and Graham). Substantial shortages and rationing can, of course, redirect consumption patterns in the short run, as shown by the evidence of the mid- to late-1970's. Thus, the low growth in

domestic demand for locally produced food, already noted, is another constraint faced by Jamaican farmers. If Jamaica is determined to follow a successful, long-run import substitution pattern of food production, efforts must be made to promote the production of those products for which there is a strong demand by urban consumers. Otherwise, emphasis must be redirected toward export earnings to service nonsubstitutable food import demand.

2d. Prices

The relationships between consumption and production for domestically produced food products are also determined by the interactions that occur in the marketing chain. The marketing of domestic food products (crops and livestock products) and empirical estimates of the relationships between farm and retail prices are documented in Background Paper #5. The primary findings are that farm-retail margins have been constant overtime and that price changes at the retail level are accurately reflected at the farm level. This is consistent with the above stated conclusions that changes in real prices (determined at the retail level) influenced the supply decisions of farmers. Moreover, farmers have received, on average, 50 percent to 75 percent of the retail price and thus do not seem to be exploited by the marketing system.

3. Food Imports

The importance of imported food products in the Jamaican consumption pattern has been noted above. This is further emphasized in Table 5 where the share of domestic production in

the total disappearance of the item is calculated for 1976 and 1986. The most striking feature of this table is that Jamaica depends almost entirely on imports of rice, wheat corn, edible oil to meet domestic demands. Currently, 40 to 50 percent of the supply of imports is from PL480 shipments (food aid). The analysis and implications this are discussed in Policy Paper 3a.

In the case of beef, production is 80 percent of consumption and for legumes, almost all consumption is met by domestic producers. In the case of chicken, while imports average 50 percent of consumption, these imports consist primarily of necks and backs. Hence, the demand for higher quality chicken meat is met by local production.

In the case of food imports, relationships between retail and CIF prices were examined in Background Paper #5. The primary findings are that increases in the CIF prices of chicken neck and backs and skim milk powder are passed directly to the consumer in the form of higher prices. A depreciation of the exchange rate, which raises import prices, would appear to adversely effect the urban poor who consume the bulk of these products. The trends in prices of cereals, oils and staples such as flour and cornmeal reveals that import prices are increasing faster than retail prices. Further, consumers of these products are "protected" from rising import prices since a one percent increase in the CIF price raises retail prices by less than one percent. However, an examination of the actual level of the retail-CIF margins reveals that in the case of rice, refined edible oils, legumes, and chicken back and necks retail prices are twice that of the imported price. This is more fully explored in Policy Paper 3a.

One would not expect equality between retail and CIF prices, but a 100 percent markup when processing and distribution costs appear quite small (in comparison, for sugar locally produced, roughly 33 percent of the final price is processing and distributing; the other 67 percent is the cost of sugar cane). In contrast, the retail price for flour exceeds the CIF price by 33 percent and the retail price for cornmeal is 33 percent less than the CIF price suggesting that prices are "correct" for flour and subsidized for cornmeal.

4. Food Exports

A major feature of Jamaican economic policy in the 1980's is the promotion of non-traditional agricultural and manufactured exports. However, non-traditional exports are still a small fraction of the total value of exports, but have surpassed the relative contribution of some traditional exports. For example, in the 1980's root crops averaged approximately 1 percent of the total value of exports which equaled or exceeded the contributions of such traditional exports as coffee, bananas, cocoa, pimento, and citrus. The percentage share of a sample of non-traditional agricultural exports in total domestic disappearance are set out in Table 5. Root crop exports, which comprise most of the non-traditional agricultural exports have average 4 percent of domestic disappearance. Vegetables such as pumpkin and tomatoes have also made up a small percentage of total production. The failure of the Springs Plains and the Grace-Kennedy operations to provide and compete in this area cast doubt as to whether Jamaica should actively pursue promotion of

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Table 5. Production, Imports, or Exports as a Percentage of Domestic Disappearance

Item	1976	1986
Beef Production	71.13%	79.66%
Pork Production	93.91	96.17
Poultry Production	58.99	53.67
Red Peas Production	60.85	96.05
Yam Exports	1.05	4.95
Sweet Potato Exports	0.38	3.31
Tomato Exports	0.00	0.24
Pumpkin Exports	2.05	4.63
Bitter Cassava	0.04	0.09
Rice Production	0.00	4.02
Corn Production	5.70	0.99
Wheat Imports	100.0	100.0
Soybean Oil Imports	100.0	100.0

non-traditional agricultural exports. Also, the apparent success of root crop exports appears to be based on several factors. First, there has been a favorable trend in prices, recently enhanced by the exchange rate. Secondly, as more Jamaicans migrate, overseas demand for these products increases.

Marketing margins for selected nontraditional agricultural exports are set out in Background Paper #5. The profile that emerges is that farmers receive a larger percentage of the retail price than the export price (and the retail price exceeds the export price) for root crops. The opposite holds for farmers selling vegetables (i.e., tomatoes and pumpkins). This may partially explain why non-traditional exports have not realized their full potential.

5. Conclusions and Implications

The recent growth of domestic food output appears to have been influenced largely by market forces stimulating domestic demand. Structural and/or technical change played practically no role in this performance. In short, over the past 20 years, governmental policy has been concerned with piecemeal and poorly administrated efforts at structural change while ignoring the potential incentive effect of prevailing prices and pricing policy on domestic food producers. Moreover, price and exchange rate policies that improve price incentives for farmers may, in the short run, increase food prices in urban areas. This would have unfavorable political ramifications on important urban constituencies, in this case the urban poor. This is not to suggest that price policy favorable to farmers is a panacea for

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modernization and efficiency in agriculture. Clearly, technical change and structural reforms are important as well. Similarly, new food product lines may have to receive technological and financial support to more adequately satisfy urban consumer demand than does the current line of domestically produced products. This is particularly true if import substitution is to be successful, since urban consumers consume more imported foods than those in rural area.

The current JLP government has attempted to improve prices for all farmers by depreciation of the exchange rate; reduction of quantitative restrictions on imports to correct the adverse sectoral terms of trade; and stopping the inequitable subsidy schemes in the agricultural sector. Further, the JLP in the 1980's has undertaken a policy of promoting export substitution (i.e., non-traditional exports such as winter vegetables) and import substitution (i.e., rice and soybean production) and designed incentives to encourage the spread of private agribusiness firms in the production of agricultural commodities. At the same time the JLP government has supported consumers by reducing/removing restrictions on food imports. This has insured that supplies of those foods demanded by consumers are not adversely impacted. The overall influence of these new policies has been mixed in that agricultural performance was better in the early 1980's than the later. Nevertheless, the net result has been that the relative profitability of the agricultural sector has been a large determinant of this sector's performance.

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Updated Analysis for Cereals for FY 1988

Corn imports are for human consumption only, approximately 1/3 of all corn imports

RESULTS FOR	1988						April 1988
	Rice	Wheat	Corn	Cornmeal	Flour	TOTAL	
Gross Domestic Production - Unmilled (tonnes)	3,395	0	0	0	0	3,395	
Seed Saved - Unmilled (tonnes)	340	0	0	0	0	340	
Waste, Feed, and Industrial Use - Unmilled (tonnes)	340	0	0	0	0	340	
Net Domestic Production - Unmilled (tonnes)	2,716	0	0	0	0	2,716	
Milling Losses (tonnes)	543	0	0	0	0	543	
Net Domestic Production - Milled (tonnes)	2,173	0	0	0	0	2,173	
Net Change in Total Stocks - Milled (tonnes)	0	0	0	0	0	0	
Official Commercial Food Imports - Milled (tonnes)	40,513	58,181	29,497	641	2,786	131,617	
Unofficial Commercial Food Imports - Milled (tonnes)	0	0	0	0	0	0	
Official Food Exports - Milled (tonnes)	0	0	0	0	0	0	
Unofficial Food Exports - Milled (tonnes)	0	0	0	0	0	0	
Food Aid - Milled (tonnes)	0	0	0	0	0	0	
Total Consumption by Commodity (tonnes)	42,686	58,181	29,497	641	2,786	133,790	
Per Capita Consumption by Commodity (kg/year)	19	26	13	0	1	60	
Total Consumption (base commodity equiv tonnes)	124,210	---	---	---	---	---	
Per Capita Consumption (base commodity equivalent kg/year)	55	---	---	---	---	---	

RESULTS FOR ----->

1984

April 1988

	Rice	Wheat	Corn	Cornmeal	Flour	TOTAL
Gross Domestic Production - Unmilled (tonnes)	5,373	0	4	0	0	5,377
Seed Saved - Unmilled (tonnes)	537	0	0	0	0	538
Waste, Feed, and Industrial Use - Unmilled (tonnes)	537	0	0	0	0	538
Net Domestic Production - Unmilled (tonnes)	4,298	0	3	0	0	4,301
Milling Losses (tonnes)	860	0	0	0	0	860
Net Domestic Production - Milled (tonnes)	3,439	0	3	0	0	3,441
Net Change in Total Stocks - Milled (tonnes)	0	0	0	0	0	0
Official Commercial Food Imports - Milled (tonnes)	22,650	94,929	34,365	115	472	152,531
Unofficial Commercial Food Imports - Milled (tonnes)	0	0	0	0	0	0
Official Food Exports - Milled (tonnes)	0	0	0	0	0	0
Unofficial Food Exports - Milled (tonnes)	0	0	0	0	0	0
Food Aid - Milled (tonnes)	0	0	0	0	0	0
Total Consumption by Commodity (tonnes)	26,088	94,929	34,368	115	472	155,972
Per Capita Consumption by Commodity (kg/year)	11	42	15	0	0	68
Total Consumption (base commodity equiv tonnes)	140,252	---	---	---	---	---
Per Capita Consumption (base commodity equivalent kg/year)	62	---	---	---	---	---

	Rice	Wheat	Corn	Cornmeal	Flour	TOTAL
Gross Domestic Production - Unmilled (tonnes)	4,269	0	75	0	0	4,344
Seed Saved - Unmilled (tonnes)	427	0	8	0	0	434
Waste, Feed, and Industrial Use - Unmilled (tonnes)	427	0	8	0	0	434
Net Domestic Production - Unmilled (tonnes)	3,415	0	60	0	0	3,475
Milling Losses (tonnes)	683	0	3	0	0	686
Net Domestic Production - Milled (tonnes)	2,732	0	57	0	0	2,789
Net Change in Total Stocks - Milled (tonnes)	0	0	0	0	0	0
Official Commercial Food Imports - Milled (tonnes)	36,582	161,554	32,572	335	1,434	232,476
Unofficial Commercial Food Imports - Milled (tonnes)	0	0	0	0	0	0
Official Food Exports - Milled (tonnes)	0	0	0	0	0	0
Unofficial Food Exports - Milled (tonnes)	0	0	0	0	0	0
Food Aid - Milled (tonnes)	0	0	0	0	0	0
Total Consumption by Commodity (tonnes)	39,314	161,554	32,629	335	1,434	235,265
Per Capita Consumption by Commodity (kg/year)	17	70	14	0	1	102
Total Consumption (base commodity equiv tonnes)	208,448	---	---	---	---	---
Per Capita Consumption (base commodity equivalent kg/year)	90	---	---	---	---	---

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	Rice	Wheat	Corn	Cornmeal	Flour	TOTAL
Gross Domestic Production - Unmilled (tonnes)	2,476	0	1,221	0	0	3,697
Seed Saved - Unmilled (tonnes)	248	0	122	0	0	370
Waste, Feed, and Industrial Use - Unmilled (tonnes)	248	0	122	0	0	370
Net Domestic Production - Unmilled (tonnes)	1,981	0	977	0	0	2,958
Milling Losses (tonnes)	396	0	49	0	0	445
Net Domestic Production - Milled (tonnes)	1,585	0	928	0	0	2,513
Net Change in Total Stocks - Milled (tonnes)	0	0	0	0	0	0
Official Commercial Food Imports - Milled (tonnes)	47,364	122,338	33,994	1,586	0	205,281
Unofficial Commercial Food Imports - Milled (tonnes)	0	0	0	0	0	0
Official Food Exports - Milled (tonnes)	0	0	0	0	0	0
Unofficial Food Exports - Milled (tonnes)	0	0	0	0	0	0
Food Aid - Milled (tonnes)	0	0	0	0	0	0
Total Consumption by Commodity (tonnes)	48,949	122,338	34,922	1,586	0	207,794
Per Capita Consumption by Commodity (kg/year)	21	52	15	1	0	89
Total Consumption (base commodity equiv tonnes)	187,510	---	---	---	---	---
Per Capita Consumption (base commodity equivalent kg/year)	80	---	---	---	---	---

	Rice	Wheat	Corn	Cornmeal	Flour	TOTAL
Gross Domestic Production - Unmilled (tonnes)	2,262	0	1,113	0	0	3,375
Seed Saved - Unmilled (tonnes)	226	0	111	0	0	338
Waste, Feed, and Industrial Use - Unmilled (tonnes)	226	0	111	0	0	338
Net Domestic Production - Unmilled (tonnes)	1,810	0	890	0	0	2,700
Milling Losses (tonnes)	362	0	45	0	0	406
Net Domestic Production - Milled (tonnes)	1,448	0	846	0	0	2,294
Net Change in Total Stocks - Milled (tonnes)	0	0	0	0	0	0
Official Commercial Food Imports - Milled (tonnes)	41,997	159,104	48,490	4,467	0	254,058
Unofficial Commercial Food Imports - Milled (tonnes)	0	0	0	0	0	0
Official Food Exports - Milled (tonnes)	0	0	0	0	0	0
Unofficial Food Exports - Milled (tonnes)	0	0	0	0	0	0
Food Aid - Milled (tonnes)	0	0	0	0	0	0
Total Consumption by Commodity (tonnes)	43,444	159,104	49,336	4,467	0	256,351
Per Capita Consumption by Commodity (kg/year)	19	68	21	2	0	109
Total Consumption (base commodity equiv tonnes)	229,996	---	---	---	---	---
Per Capita Consumption (base commodity equivalent kg/year)	98	---	---	---	---	---

RESULTS FOR ----->

1988

April 1988

Population (thousands)

2,390

	Rice	Wheat	Corn	Cornmeal	Flour	TOTAL
Per Capita Requirement - Milled (kg/yr)	17	52	16	1	1	86
Total Food Need - Milled (tonnes)	41,569	123,158	37,438	1,464	1,650	205,279
Gross Domestic Production - Unmilled (tonnes)	2,303	0	1,135	0	0	3,438
Seed Saved - Unmilled (tonnes)	230	0	114	0	0	344
Waste, Feed, and Industrial Use - Unmilled (tonnes)	230	0	114	0	0	344
Net Domestic Production - Unmilled (tonnes)	1,842	0	908	0	0	2,750
Milling Losses (tonnes)	368	0	45	0	0	414
Net Domestic Production - Milled (tonnes)	1,474	0	863	0	0	2,337
Total Stocks - Milled (tonnes)	0	0	0	0	0	0
Official Food Exports - Milled (tonnes)	0	0	0	0	0	0
Unofficial Food Exports - Milled (tonnes)	0	0	0	0	0	0
Domestic Food Supply - Milled (tonnes)	1,474	0	863	0	0	2,337
Import Requirement - Milled (tonnes)	40,095	123,158	36,575	1,464	1,650	202,942
Official Commercial Food Imports - Milled (tonnes)	0	0	0	0	0	0
Unofficial Commercial Food Imports - Milled (tonnes)	0	0	0	0	0	0
Food Deficit by Commodity - Milled (tonnes)	40,095	123,158	36,575	1,464	1,650	202,942
Food Deficit by Commodity - Unmilled (tonnes)	50,119	153,947	38,500	1,464	1,650	245,680

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RESULTS IN MILLED BASE COMMODITY EQUIVALENT TERMS FOR --->	1988
Report date:	Sept 1988
Base Commodity:	Rice

Per Capita Requirement (kg/yr)	77.1
Total Food Need (tonnes)	184,215

Food Supply:	
Net Production (tonnes)	2,339
Total Stocks (tonnes)	0
Official Exports (tonnes)	0
Unofficial Exports (tonnes)	0
Total:	2,339

Import Requirement (tonnes)	181,876

Official Food Imports -or- Import Capacity (tonnes)	271,576
Unofficial Food Imports (tonnes)	0

Food Deficit (tonnes)	(89,700)
