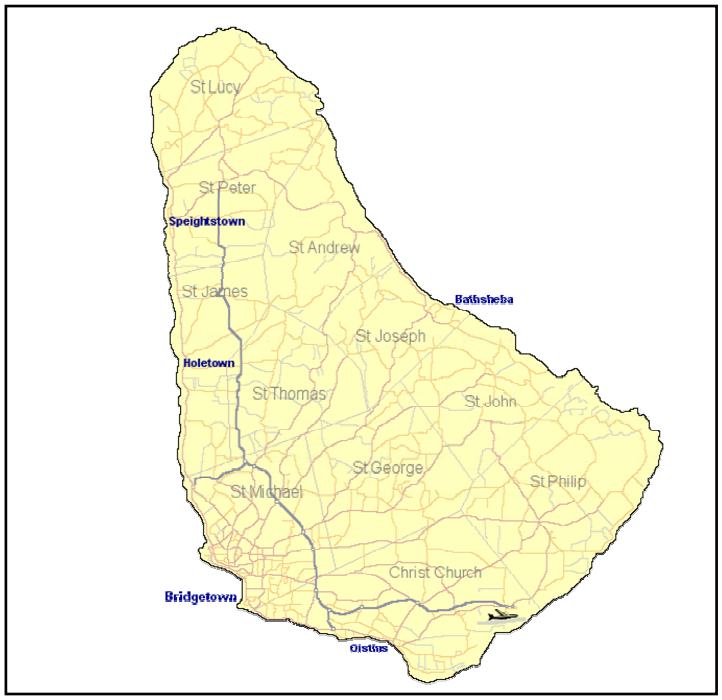
FAO - NUTRITION COUNTRY PROFILES

BARBADOS



FOOD AND AGRICULTURE ORGANIZATION

OF THE UNITED NATIONS

Note for the reader

The objective of the Nutrition Country Profiles (NCP) is to provide concise analytical summaries describing the food and nutrition situation in individual countries with background statistics on food-related factors. The profiles present consistent and comparable statistics in a standard format. This pre-defined format combines a set of graphics, tables and maps each supported by a short explanatory text. Information regarding the agricultural production, demography and socio-economic level of the country are also presented.

In general, data presented in the NCP are derived from national sources as well as from international databases (FAO, WHO...).

Technical notes giving detailed information on the definition and use of the indicators provided in the profile can be obtained from ESNA upon request. An information note describing the objectives of the NCP is also available.

Useful suggestions or observations to improve the quality of this product are welcome.

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Nutrition Country Profile of Barbados

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General map of Barbados

Graphs, tables and maps can be visualised by clicking on the words in bold and underline, only in the "Full profile" pdf file.

SUMMARY

*According to the 1981 national health and nutrition survey 29% of the children under 5 years old were malnourished (0.5% severely, 3.6% moderately and 24.9% mildly) using the Gomez weight-for-age classification. This level represented a decrease in the level of malnourished pre-school children in the population, compared to earlier estimates which indicated that 39% were malnourished (0.3% severely, 3.2% moderately and 35.5% mildly) in 1975. According to the 1981 survey results, 3.8% of the pre-school children were obese (weight-for-height) (**Table 4a**). Among children 5-9 years, a slightly larger proportion of girls compared to boys were underweight (15.9% vs. 14%) as well as overweight (5.6% vs. 3.2%). No recent data are available to represent the current situation.*

In 1981, among the adolescents (10-19 years) the prevalence of overweight was fairly high especially among girl, with a 20% prevalence of overweight among 10-14 year olds and a 19% prevalence among 15-19 year olds. The level of malnutrition, while very similar for males and females (10-14 years), was significantly higher among females than males in the 15-19 year age group.

The obesity prevalence is even higher among adults. An unpublished study carried out in 1991 among an urban population (>25 years) found that 10% and 31% of males and females respectively were obese. Fifteen percent of males and 28% of the females were overweight. The prevalence of overweight appears to be on the increase, as in 1981 38.0% of the females (>15 years) were overweight or obese, while 16.2% of the males were overweight or obese.

*The micronutrient deficiency of importance in Barbados is iron. The prevalence in 1981 among children 6-59 months was 31.3%, with a greater proportion of boys (52.5%) compared with girls (38.2%) being anaemic. When a lower cut-off point (< 10.5 g/dL) was used to indicate the presence of anaemia, only 14.9% of the children 6-59 months were anaemic. This represented a decline in the prevalence of anaemia among this age group compared to survey findings in 1969 and 1975 (**Table 5**). Similarly when the prevalence of anaemia was determined by the criteria used by the 1969 survey (< 11.5 g/dL for males and < 11 g/dL for females), 25.4% of males and 29.1% of females (5-14 years) were found to be anaemic. These levels appear to represent an increase in the prevalence of Anaemia among school children compared to 1969, although a wider age group was examined in 1969. Again using the 1969 criteria, the prevalence of anaemia among the non-pregnant and non-lactating females was approximately the same for 1969 (19.0%) and 1981 (18.8%).*

The most recent national survey on food consumption carried out in Barbados was in 2000. Also, three surveys conducted between 1969 and 1981, along with more recent data, provide some information on the consumption pattern in the country. The proportion of protein derived from foods from animals increased from 38.8% in 1996 to 58.2% in 1996-98. This resulted in an increase in the amount of fat consumed. Along with the increase in per caput dietary energy supplies (DES) between 1965 (2636 kcal//day) and 2000 (3025 kcal//day) may also be factors contributing to the prevalence of overweight and obesity in the population.

The proportion of average monthly income spent on food decreased from 51% in 1969 to 40% in 1981, possibly due to an improvement in the economic status of the population. Between 1993 and 1999 the World Bank reported that 8% of the population was living below the poverty line. This segment of the population is at risk for low nutrient intake, especially among children living in these households.

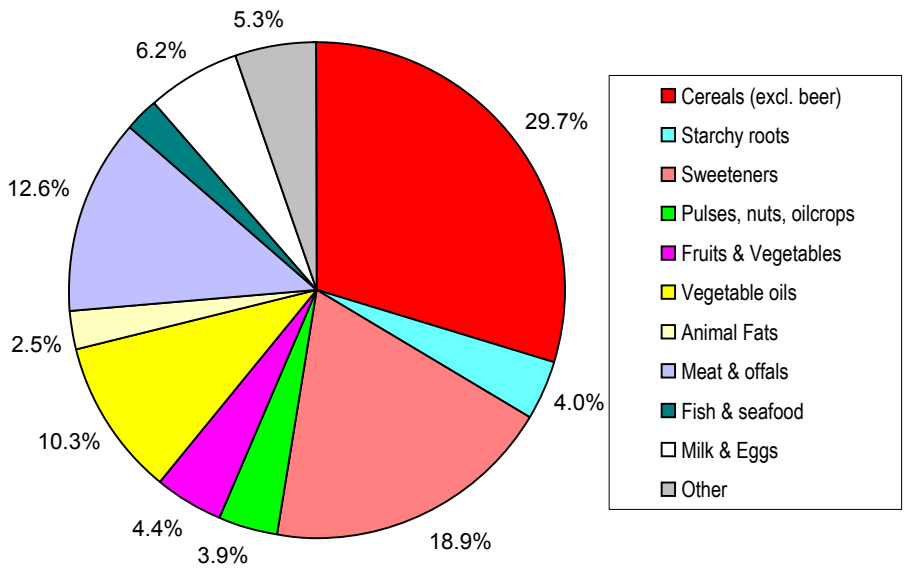
TABLE 1: GENERAL STATISTICS OF BARBADOS

Last updated: 20/08/2003

Indicator (§)	Year	Unit	
A. Land in use for agriculture			
1. Agricultural land	1995	ha per person	0.072
2. Arable and permanent crop land	1995	ha per person	0.064
B. Livestock			
1. Cattle	1996-98	thousands	25
2. Sheep & goats	1996-98	thousands	46
3. Pigs	1996-98	thousands	31
4. Chickens	1996-98	millions	4
C. Population			
1. Total population	2000	thousands	267
2. 0-5 years	2000	% of total pop.	...
3. 6-17 years	2000	% of total pop.	...
4. 18-59 years	2000	% of total pop.	...
5. >= 60 years	2000	% of total pop.	13.4
6. Rural population	2000	% of total pop.	49.8
7. Annual population growth rate, Total	2000-2005	% of total pop.	0.4
8. Annual population growth rate, Rural	2000-2005	% of rural pop.	
9. Projected total population in 2030	2030	thousands	299
10. Agricultural population	2000	% of total pop.	4.1
11. Population density	1995	pop. per km^2	614.0
D. Level of Development			
1. GNP per capita, Atlas Method	2001	current US$	9250
2. Human Development Index rating (new)	2000	min[0] - max[1]	0.871
3. Incidence of poverty, Total	...	% of population	...
4. Incidence of poverty, Rural or Urban	...	% of population	...
5. Life expectancy at birth (both sexes)	2000	years	
6. Under-five mortality rate	2000	per 1,000 live births	14
E. Food Trade			
1. Food Imports (US $)	1996-98	% of total imports	11.2
2. Food Exports (US $)	1996-98	% of total exports	27.3
3. Cereal Food Aid (100 t)	1996-98	% of cereals imports	...
F. Indices of Food Production			
1. Food Production Index	1996-98	1989-91=100	99.8
2. Food Production Index Per Capita	1996-98	1989-91=100	96.1

Indicator (§)	Year	Unit	
G. Average Food Supply			
1. **Dietary Energy Supply (DES)**	1998-2000	kcal/caput/day	3025

Percentage of DES by major food groups



Note: Value not indicated if below 1%

	% Energy from:			
2.	Protein	1998-2000	% of total energy	11.3
3.	Fat	1998-2000	% of total energy	29.1
4.	**Proteins**	1998-2000	g/caput/day	85.4
5.	Vegetable products	1998-2000	% of total proteins	41.9
6.	Animal products	1998-2000	% of total proteins	58.1
H. Food Inadequacy				
1.	Total population "undernourished"	1995-97	millions	...
2.	% population "undernourished"	1995-97	% of total pop.	...

... no data available

BARBADOS

I. OVERVIEW

1. Geography

Barbados, the easternmost Caribbean island, extends over 430 km^2, over mostly flat terrain, except in the north eastern part where the highest point, Mt. Hillaby (336m), is located. Given the country's small size, it is difficult to define areas as urban or rural, but the most densely populated areas are found along the western, south western, and southern coasts (**General Map**).

The country has a good network of roads, and an international airport. The population also is well served by a system of private and public transportation. Because the island lies within the hurricane belt, each year there is increased vigilance from June through November. The Central Emergency Relief Organization is responsible for disaster preparedness and response.

The climate of Barbados is often described as very congenial. The average annual rainfall ranges from approximately 30 inches in the coastal lowlands to 80 inches in the central ridge area. Most of the rainfall occurs between June and November. Temperature variation is small (22^{o}C to 30^{o}C). There are no rivers, possibly due to the fact that the island is composed of coral limestone, through which water rapidly percolates to form underground reservoirs. These are the source of the island fresh water supply.

The country is divided into eleven (11) parishes: St. Lucy, St. Peter, St. Andrew (the least populated parish), St. James, St. Thomas, St. Joseph, St. John, St. George, St. Philip, Christchurch (the second most populated parish) and St. Michael (the most populated parish) in which Bridgetown, the capital, is located (BSS, 2002).

2. Population

The 2000 mid-year population was estimated at 267,000, with 50.2% living in urban areas (UN, 2002). Between 2000 and 2005, the population is expected to grow by 0.35%, and is projected to reach to 285,000 by 2030 (UN, 2001, 2002). However, the 2000 Population and Housing Census (May, 2000) recorded the total population of Barbados residents at 268,792, with 48.1% males and 51.9% females. The census (2000) also showed that 6.8% of the population were below 5 years old, 21.5% were under 15 years old, 15.7% were 60 years or older and 12.1% were 65 years or older (BSS, 2002). The 1995 mid-year population was estimated at 265,173, with 47.9% males and 52.1% females. However, there were 19.4% more females than males in the age group 65 years and older, which made up approximately 12% of the population, and 23% was under 15 years (PAHO/WHO, 1999.a).

The population density in 1995 was 614 persons per km^2, up from 556 in 1970 and 598 in 1990 (**Table 1)**. The most densely populated areas are found along the western, south-western, and southern coasts (PAHO/WHO, 1999.a). In 2000, approximately 37% of the total population lived in country's capital, Bridgetown (PAHO, 2002). Over 70% of the population are of African descent, approximately 17% of mixed race, 4% are European and 9% are of other ethnic groups (PAHO/WHO, 1999.a).

3. Level of development: poverty, education and health

Approximately 8% of the population were living below the national poverty line between 1993 and 1999 (World Bank, 2000). The human development index rating (a composite measure of the country's achievement in terms of life expectancy, health, knowledge and living standard) for 2000 was 0.871, up from 0.857 in 1997 (UNDP, 2002). Using the Atlas method, the gross national product (GNP) per capita was recorded at US$ 9,250 in 2001, up from US$ 8,630 in 1999 (World Bank, 2002).

In 1990, there were approximately 75,170 households in Barbados and 70,693 (94%) of them had piped water. The other 6% had easy access to public water-supply facilities. More than 75% of households have telephones, and telecommunication services are readily available. More than 90% of households have electricity. According to the Statistical Service's Continuous Household Survey, in 1996 the average household size was 3.5 persons; the 1990 census revealed that women headed 44% of households. The country has a good network of roads, and an international airport. The population is also well served by a system of private and public transportation (PAHO/WHO, 1999.a).

The literacy rate in Barbados, estimated at 97.4% in 2000, is one of the highest in the Caribbean. Education at the primary and secondary levels is compulsory until age 16 (PAHO, 2002).

In 1999, life expectancy at birth was 74.1 years for men and 79.1 years for women (PAHO, 2002). Over the period 2000-2005, life expectancy is predicted to be 74.5 years for males and 79.5 years for females (UN, 2001). In 2000, the mortality rate of children under 5 years old and that of infants were 14 and 12 per 1000 live births respectively, consistently among the lowest in the Caribbean (UNICEF, 2002). Infant mortality rate in 1998 was 10.9 per 1000 live births (PAHO, 2002).

Like many of the other Caribbean countries, Barbados has experienced an epidemiological transition where the primary public health concerns are no longer communicable diseases, except in the case of HIV/AIDS and a number of other sexually transmitted diseases. Chronic non communicable diseases have become the major health concern of the country, compounded by the increasing level of obesity. Wilks et al., (1998) in a study carried out in 1991 among an urban population of adults, found that 31% of the females and 10% of the ales were obese (BMI $\geq$ 30). The study also found that an additional 28% and 15% of women and men, respectively, were overweight (BMI: 25-29), and that the average BMI of the females (29.4) was higher than that of the males (25.9) (Wilks et al., 1998). Further, the study indicated that 25.9% and 28.2% of men and women respectively had hypertension, while 7.8% and 8.4% of men and women, respectively, had Type II diabetes.

Armed confrontation has also become a public health priority along with accidents (including those involving motor vehicles) and falls, which accounted for most of the admissions to the Queen Elizabeth Hospital between 1992 and 1995 (PAHO/WHO, 1999.a).

The government operates the Queen Elizabeth Hospital, a large secondary and tertiary care facility, as well as a network of 4 district hospitals for geriatric care. In addition to these, a national network of 8 polyclinics and 4 satellite stations provide a wide range of preventative and curative services. Health services are also provided by the private sector, with over 100 private general practitioners. There is only one small private hospital in the country (PAHO/WHO, 1999b).

4. Agricultural production, land use and food security

Agriculture in Barbados accounted for 6.1% of GDP in 1999 compared with 9.2% and 5.2% in 1979 and 1989 respectively (World Bank, 2000). The agricultural population represented

4.1% of the total population in 2000 (5.3% in 1995). In 1995, 0.072 hectare of agricultural land per person was available including 0.064 hectare of arable and permanent crop/meadow land per person (FAOSTAT, 1999; 2002). In the year 2000, it was estimated that 20 Km^2 of the island was forest area (World Bank, 2002).

Over the years the main export food products of Barbados have been sugar and rum (alcoholic beverages), but sugar exports have declined significantly between 1964-66 and 1998-2000, whereas alcoholic beverages exports have increased nearly 100% over the same period. Other food products exported by Barbados include vegetable oils, fruits and cereals which have seen a dramatic increase in export volume between 1964 and 2000 (FAOSTAT, 2002). In addition to the domestic crops, a fairly large number of livestock is reared in Barbados. These include cattle, sheep, goats, pigs and chickens (**Table 1**).

Food availability does not appear to be a problem in Barbados as per caput dietary energy supply (DES) greatly exceeds per caput energy requirements (**Table 2**). In fact, the level of obesity in the country is a public health concern (no figures available for undernourished persons within the population). However, the share of imported products as a percentage of DES has been steadily increasing since the 1960's and has been over 100% since 1984-86, indicating a high level of dependence on imported foods (FAOSTAT, 2002).

5. Economy

The greatest contributor to gross domestic product (GDP) between 1979 and 1999 was the service sector (dominated by tourism), which was 72.4% of GDP in 1999 and 69.7% in 1979. Industry (mainly construction), followed by manufacturing and then agriculture have consistently held their respective positions in terms of contribution to GDP over the period 1979-1999 (World Bank, 2000). Tourism contributed US$ 232.2 million in 1999 to GDP, up from US$ 225.4 million in 1997. In 1999-2000, the overall fiscal deficit was 1.5% of nominal GDP, but this was within the government's annual target of fiscal deficit of 2.5% of GDP (PAHO, 2002).

The economy of Barbados currently appears to be in relatively good shape. Between 1992 and 1999, Barbados experienced seven years of consecutive growth, with GDP moving from US$ 1.4 billion in 1992 to US$ 2.1 billion in 1999. During the 1993-1999 period, the annual average growth rate was 2.8%. Per capita GDP increased from US$ 5,650 in 1992 to US$ 7,750 in 1999 (PAHO, 2002).

During 1992–1995, Barbados's economy recovered from the recession that began in 1989, showing growth in real output and in international reserves, as well as improvements in the balance of payments. In fiscal year 1991–1992, the Government introduced an 18-month stabilisation program, designed to restore balance to the country's finances and external accounts. Real gross domestic product in 1992 had fallen to US$ 395.5 million, due to the recession in 1989. In 1993, however, real output had risen to US$ 401.9 million, reaching US$ 428.4 million by 1995. The main sectors of the economy that contributed to this growth were tourism, manufacturing, wholesale and retail trade, and business and general services.

The first surplus in three years on the current balance of payments was recorded in 1992; it was sustained during 1993–1995. The rate of inflation, recorded at 6.2% in 1992, dropped to 0.1% in 1994, but rose again 1.9% in 1995 (PAHO/WHO, 1999a).

II. THE FOOD AND NUTRITION SITUATION

1. Trends in energy requirements and energy supplies

Between 1965 and 2000, as shown in **Table 2**, the total population of the country increased by 13.6% (growth rate of 0.35% over the period 2000-2005) and is projected to increase by 12% by the year 2030. In 2000, the urban population was 50.2% of the total population, a significant increase from 1965 (36.0%). Along with the increase in population size, there has been a 5.7% increase in the per caput energy requirements which is projected to decrease slightly (1.5%) by the year 2030 (UN, 2001, 2002).

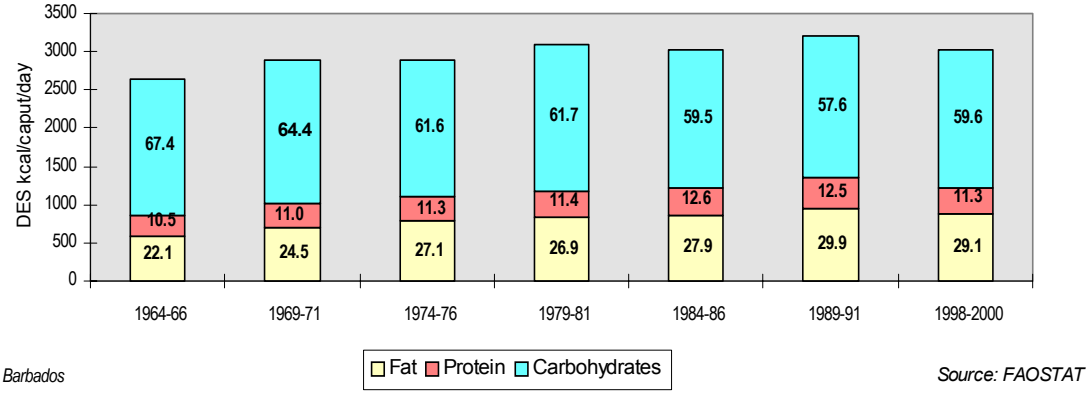
Table 2: Total population, urbanisation, energy requirements and dietary energy supplies (DES) per person and per day in 1965, 2000 and 2030

Year	1965	2000	2030
Total population *(thousands)*	235	267	285
Percentage urban *(%)*	36.0	50.2	66.0
Per caput energy requirements *(kcal/day)*	2175	2300	2265
Per caput DES *(kcal/day)* *	2636	3025	—

* Three-year average calculated for 1964-66 and 1998-2000 (*Source*: FAOSTAT)

The per caput DES was consistently above the requirements over the period 1965 - 2000 and experienced an 18% increase between the same period, confirming that food availability is not a problem in Barbados (**Table 2**).

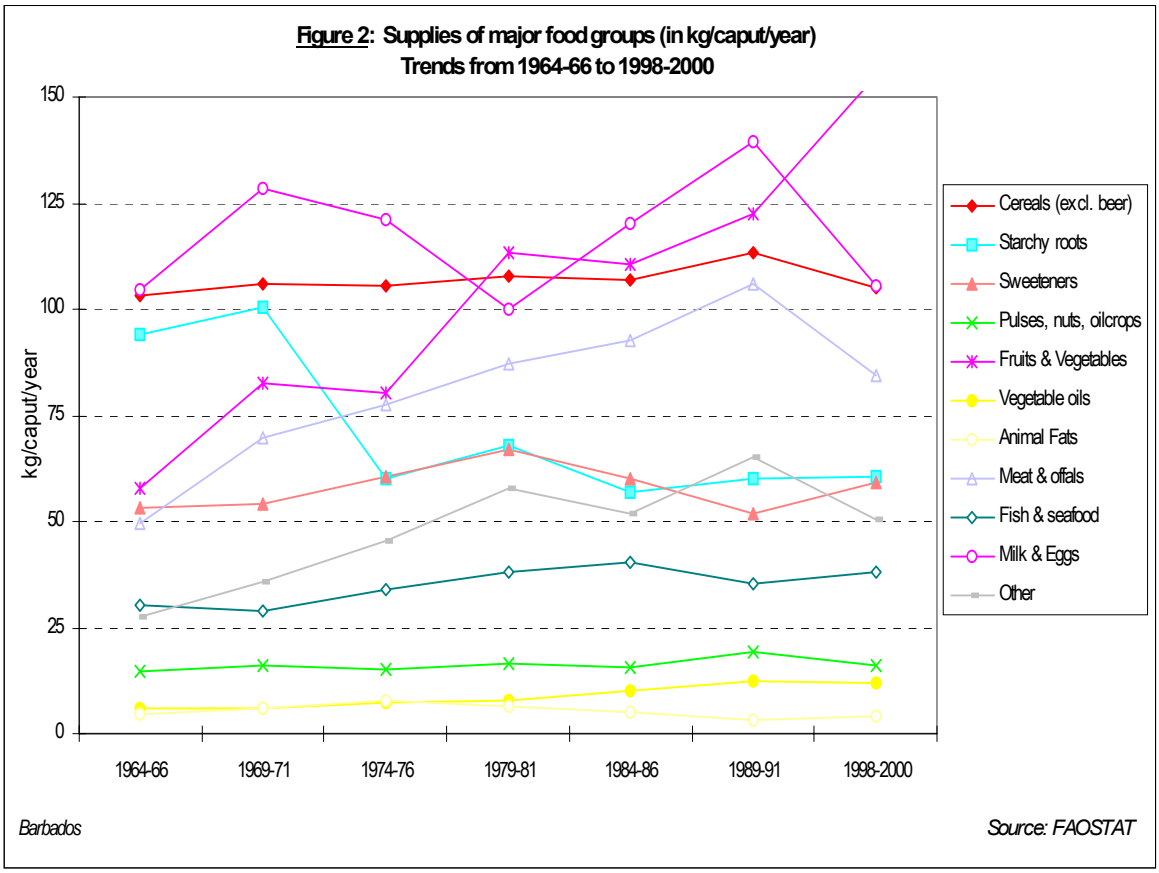
Figure 1: Share of protein, fat and carbohydrate in Dietary Energy Supply Trends from 1964-66 to 1998-2000



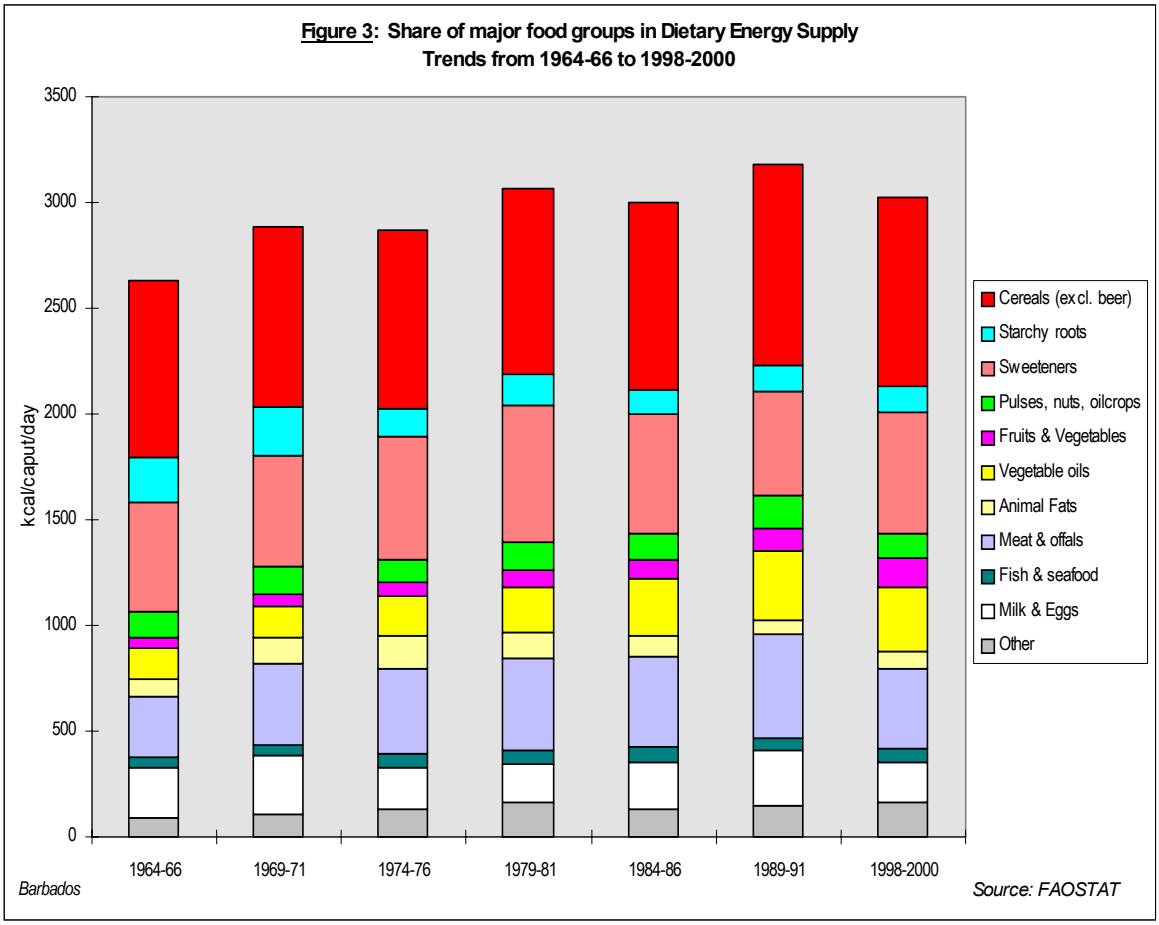
The contributions of protein, fat and carbohydrate as a percentage of DES over the period 1965-2000 experienced continuous variations. Overall, the contribution of protein increased from 10.5% to 11.3%, that of fat from 22.1% to 29.1%, and that of carbohydrate decreased from 67.4% to 59.6% (FAOSTAT, 2002). The increase in the contribution of fat as a percentage of DES over the period may be partly responsible for the increase in the prevalence of obesity in Barbados (**Figure 1**).

2. Trends in food supplies

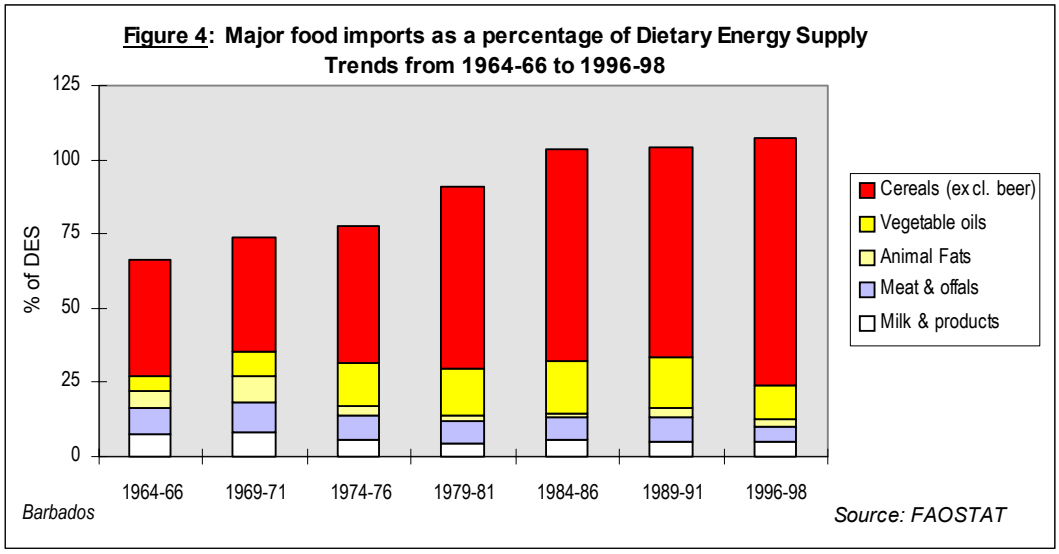
Quantity: During the period 1964-2000, all the major food groups experienced growth ranging from marginal to substantial in terms of supplies (kg/caput/year), except for the groups animal fats (decreased) and starchy roots (remained the same). They also experienced variations throughout the period. Only the categories vegetable oils, and meat and offals displayed any continuous trend over a long period (20-25 years), with both increasing steadily from 1964-66 through to 1989-91 and then decreasing thereafter through to 19968-2000. The 1998-2000 supplies of fruit and vegetables were over 2.5 times greater than those of 1964-66, and the 1998-2000 vegetable oils supplies were almost twice as large as those of 1964-66 (FAOSTAT, 2002) (**Figure 2**).

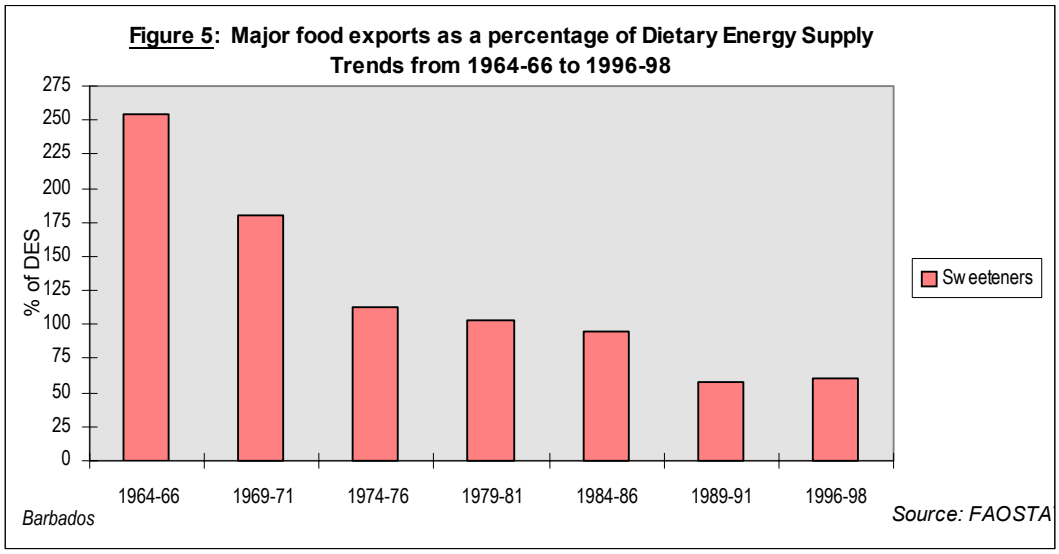


Energy: **Figure 3** shows that cereals maintained the largest share in DES, increasing from 839 to 899 kcal/caput/day between 1964-66 and 1998-2000. The second largest group in terms of share of DES, was sweeteners - mainly sugar - (514.2 to 572 kcal/caput/day) over the same period, followed by meat and offals (287.1 - 381 kcal/caput/day). All experienced fluctuations throughout the period. Milk and eggs had the fourth largest share of DES between 1964-66 and 1974-76; thereafter this group was relegated to 5th position as it was surpassed by vegetable oils, which experienced a significant increase over the 34-year period. This particular group occupied 6th position between 1964-66 and 1969-71, and 5th position in 1979-81. Interestingly, starchy roots had the 5th largest share of DES between 1964-66 and 1969-71, decreasing overall between 1964 and 2000. Fish and seafood, and other foods all experienced an increase in quantity as well as share of DES between 1964-66 and 1998-2000, while pulses, nuts, oilcrops experienced a marginal decrease in its share of DES.



Major food imports and exports: **Figure 4** shows the increase in food imports as a percentage of DES between 1964-66 and 1996-98, which moved from approximately 65% to over 100% since 1984-86. Cereal imports increased over 100%, as did its value as a percentage of DES over the same period, as by 1979-81 Barbados was importing most of its cereals. Vegetable oils imports increased significantly over the period, mainly at the expense of animal fats and meat and offals as well as milk and products, which all experienced a reduction in importation over the period. Although Barbados' primary export is sweeteners, there was a significant increase in the importation of sweeteners between 1964-66 and 1996-98 (FAOSTAT, 1999). The need for this high level of imported food by Barbados means that the country is heavily dependent on international trade in order to supply its people with food.





The group sweeteners has been the primary export food product of Barbados throughout the period 1964-66 to 1996-98. As a percentage of DES, its export has declined sharply, moving from as much as 253.8% in 1964-66 down to 60.6% in 1996-98 (**Figure 5**).

3. Food consumption

No recent information is available on food consumption patterns in Barbados. Although a food consumption survey was carried out in 2000, the results are not yet officially available. Three national surveys, carried out separately in 1969, 1980 and 1981, provide most of the information on the pattern of food consumption. From the 1969 survey (PAHO, 1972), the mean calorie intake was estimated at 2151 kcal/caput/day; the mean protein and fat intakes were estimated at 64.8g/caput/day (of which 35.9g were of animal origin), and 65.8g/caput/day respectively. There was marked variation at the parish level (**Table 3**). The average household intake of calcium iron, vitamin A, and thiamine was either above or close to 100% of requirements. However, only 64% of the families actually consumed 100% of vitamin A requirements and only 40% of the households met requirements for calcium, iron, and thiamine. In the majority of the households (86 - 67%), the vitamin C, riboflavin, and

niacin requirements were not being met. Over 38% of the energy was provided by cereals, whereas 12.6% and12.2% were provided by animal products and by oils and fats respectively (**Table 3**). Food from animals (38.8%) was the major source of protein followed by cereals (30.0). The pattern was similar for both urban and rural residents (PAHO, 1972). The 1980 survey (Sengupta, 1981), revealed that fish was the most widely used animal product, followed by chicken, beef and then by pork and mutton (FAO, 1989).

The most common eating pattern identified among the adults in 1969 was the consumption of two cooked meals (breakfast and the evening meal) by the family each day. The next most common pattern was one main meal (midday or evening), while a small proportion of households reported having three meals (breakfast, lunch and dinner) or breakfast only. With regards to the children, 70.5% of the parents reported that the children ate more often than the adults, while 25.5% said that the children ate with the same frequency as adults (4% ate less) (PAHO, 1972). Traditionally, some of special dishes of Barbados include cornmeal, coo-coo, and flying fish (the national dish); jug-jug (a mashed, stewed - gungo- peas, a Christmas dish); conch fritters; and black pudding (a blood sausage derived from the British) and souse (marinated meat of cooked pigs head, tongue, and trotters in lime juice, also pickled meat/fish in lime juice) (CFNI, 1983). Pudding and souse are a very popular Sunday lunch in Barbados.

According to the 1969 survey, the mean per capita expenditure on food was 51% of the mean annual income. Among households at the 10^{th} percentile mean per capita expenditure on food was 94% of mean annual income, while it was 39% for households at the 90^{th} percentile. The proportion of the mean monthly income spent on food was approximately 40% in 1981, which was 72% of mean monthly expenditure. While not stated in the survey results, households in the lower income bracket were more likely to have spent a higher proportion of their income on food compared to those in the higher income groups. A larger proportion (74%) of the households had a kitchen garden/farm in 1969 compared with those who had (56.2%) in 1981 (PAHO/CFNI, 1986). Some of the crops produced include fruits, ground provisions (& breadfruit), peas and beans, dark green vegetables and other vegetables (1-3 crops grown per household, with fruits, ground provisions, and peas and beans being the most common).

Despite on going efforts aimed at improving the proportion of exclusively breastfed babies between 0 and 4-6 months old, the majority of babies were not being exclusively breastfed and many were not receiving breastmilk after 4-6 months. The 1981 study, showed that 45% of the mothers were still breastfeeding 3 months after delivery, compared with 75% seen in the 1969 survey. In 1981, 83% of the babies received the first bottle-feed by 4 weeks of age compared with 61% in 1969. There was a general trend towards the early introduction of weaning foods. These foods included cereals and fruit juices, given in a bottle, peas, beans, vegetables, eggs, and fish and poultry (meat was only given to children who were over 6 months old) (PAHO/CFNI, 1986).

Table 3: Food consumption surveys

Source/ Year of survey	Location	Sample Number households	Average food intake							
			Nutrient Intake (person/day)							
			Energy (kcal)	% Protein	% Fat		Protein (g)	% Animal products		Fat (g)
PAHO, 1972	National	139	2151	12.0	27.5		64.8	55.0		65.8
NHNS, 1969	Parish:									
	Christ Church	19	2550	12.3	27.8		73.4	55.0		78.7
	St. Phillips	18	2070	11.4	30.1		59.5	55.0		69.2
	St. Michael	66	2110	12.4	27.4		65.6	56.0		64.3
	St. Andrew	21	1960	11.8	25.1		57.9	54.0		54.7
	St. Joseph	15	2181	10.9	27.9		59.8	51.0		67.7

			Share of major food groups in total energy intake (%)								
			Cereals	Roots/ Tubers	Pulses	Fruits/ Vege-tables	Oils/ Fats	Meat	Fish	Milk prod.	Sweet-eners
PAHO, 1972	National	139	38.5	6.2	4.4	1.3	12.2	12.6	…	8.9	11.2
NHNS, 1969											

Note: ... data not available

4. Anthropometric data

The 1981 national health and nutrition survey revealed that 29% of the children under 5 years old were malnourished (0.5% severely, 3.6% moderately and 24.9% mildly) using the Gomez weight-for-age classification. Compared to a 1975 survey (unpublished data), reported in PAHO/CFNI (1986), this level represented a decrease in the level of malnourished pre-school children in the population, as 39% were reported malnourished (0.3% severely, 3.2% moderately and 35.5% mildly) in 1975. According to the 1981 survey results (PAHO/CFNI, 1986), 3.9% of the pre-school children were overweight (> 120% standard weight-for-height) (**Table 4a**).

Among children 5-9 years, a slightly larger proportion of girls were underweight (15.9% vs. 14.0%) as well as overweight (5.6% vs. 3.2%) compared to boys. Among the adolescents (10-19 years), a significantly larger proportion of females compared to males were overweight in the two age ranges (10-14 years and 15-19 years) 20% vs. 7.8% and 18.8% vs.11.1%, for girls and boys respectively. The level of malnutrition, while very similar for males and females among those in the 10-14 years age group, was significantly higher among females than males in the 15-19 years age group.

A study carried out in 1991 (Wilks et al., 1998) among an urban population 25 years and older, found that 10% and 31% of males and females, respectively, were obese. A further 15% of males and 28% of the females were overweight. In a previous survey (PAHO/CFNI, 1986), among persons in the age group 15 years and older, the prevalence of overweight (> 120% Harvard standard weight-for-height) among females was more than twice that among males.

Between 1991 and 1995, the prevalence of low birth weight babies fluctuated between 9% and 11% (PAHO/WHO, 1999.a). In 1981, with 99% of deliveries taking place in at the Queen Elizabeth Hospital, 16% of the children born in Barbados had low birth weight (< 2,500g) (PAHO/CFNI, 1986).

Table 4a: Anthropometric data on children

Source/ Year of survey	Location	Sample Size Number	Sex	Age Years	Percentage of malnutrition						
					Underweight % Weight/Age		Stunting % Height/Age		Wasting % Weight/Height		Overweight % Weight/Height
					< -3SD	< -2SD*	< -3SD	< -2SD*	< -3SD	< -2SD*	> +2SD
CFNI/PAHO, 1996	National	597	M/F	0-4.99	1.0	5.9	1.7	7.0	1.8	4.9	3.9
NHNS, 1981		89	M/F	0-0.99	1.1	5.6	1.1	10.1	1.1	6.7	4.5
		103	M/F	1	1.0	4.9	1.9	10.7	1.0	3.9	5.8
		117	M/F	2	0.9	7.7	0.9	6.8	3.4	4.3	2.6
		121	M/F	3	0.8	2.5	2.5	5.0	0.8	0.8	4.1
		123	M/F	4	0.8	5.7	2.4	5.7	0.8	4.1	3.3
		313	M	0-4.99	0.3	4.5	1.6	6.7	1.6	4.8	2.9
		45	M	0-0.99	0	4.4	2.2	13.3	2.2	6.7	4.4
		58	M	1	0	0	1.7	10.3	1.7	3.5	1.7
		56	M	2	1.8	7.1	0.0	3.6	1.8	3.6	1.8
		68	M	3	0	2.9	2.9	5.9	0	0	5.9
		60	M	4	0.0	3.3	1.7	5.0	1.7	6.7	1.7
		284	F	0-4.99	1.8	7.4	1.8	7.4	2.1	4.9	4.9
		44	F	0-0.99	2.3	6.8	0.0	6.8	0.0	6.8	4.6
		45	F	1	2.2	11.1	2.2	11.1	0.0	4.4	11.1
		61	F	2	0.0	8.2	1.6	9.8	4.9	4.9	3.3
		53	F	3	1.9	1.9	1.9	3.8	1.9	1.9	1.9
		63	F	4	1.6	7.9	3.2	6.4	0.0	1.6	4.8

Notes: ... no data available

Each index is expressed in terms of the number of standard deviations (SD) units from the median of the NCHS/CDC/WHO international reference population.

* Includes children who are below -3 SD.

5. Micronutrient deficiencies

No data were available that indicated that iodine and vitamin A deficiencies are of any public health concern in Barbados. However, like most other Caribbean countries the level of iron deficiency among some groups in the population is relatively high. While figures for recent years are not readily available, the 1981 National Health and Nutrition Survey (PAHO/CFNI, 1986) revealed that 31.3% of children 6-59 months old were anaemic by WHO standards. In addition, a larger proportion of males (52.5%) than females (38.2%) in the 5-14 years age group was anaemic (**Table 5**). However, in the 15 years and older age group a larger proportion of females were anaemic compared to males, using the WHO cut-off points for haemoglobin levels.

When a cut-off point of < 10.5 g/dL was used to indicate the presence of anaemia, only 14.9% of the children 6-59 months were anaemic (1981 survey). This represented a decline in the prevalence of anaemia among this age group compared to survey findings in 1969 (**Table 5**). Similarly when the prevalence of anaemia was determined by the criteria used by the 1969 survey (< 11.5 g/dL for males and < 11 g/dL for females), 25.4% of males and 29.1% of females (5-14 years) were found to be anaemic. These levels appear to represent an increase in the prevalence of anaemia among school children compared to 1969, although a wider age group was examined in 1969. Again using the 1969 criteria, the prevalence of anaemia among the non-pregnant and non-lactating women was approximately the same for 1969 (19.0%) and 1981 (18.8%) (PAHO/CFNI, 1986). The prevalence of iron deficiency anaemia among pregnant and lactating women was not examined by the 1969 or the 1981 surveys.

Table 5: Surveys on micronutrient deficiencies

Source/ Year of survey	Deficiency	Location	Sample			Percentage
			Size Number	Sex	Age Years	
	Iron					
CFNI/PAHO, 1986.	< 11 g/dL	National	201	M/F	0.5 - 4.99	31.3
NHNS, 1981						
	< 10.5 g/dL	National	201	M/F	0.5 - 4.99	14.9
	< 12 g/dL	National	59	M	5.0-14.0	52.5
	< 12 g/dL	National	55	F	5.0-14.0	38.2
	< 12 g/dL	National	193	F	>15	27.5
	< 13 g/dL	National	131	M	>15	19.1
	< 11 g/dL	National	55	F	5.0-14.0	29.1
	< 11.5 g/dL	National	59	M	5.0-14.0	25.4
PAHO, 1972	< 10.5 g/dL	National	107	M/F	0-4.99	32.7
NFNS, 1969						
	< 11 g/dL	National	91	F	5.0-16.0	5.5
	< 11.5 g/dL	National	71	M	5.0-16.0	14.1

Note: ... data not available

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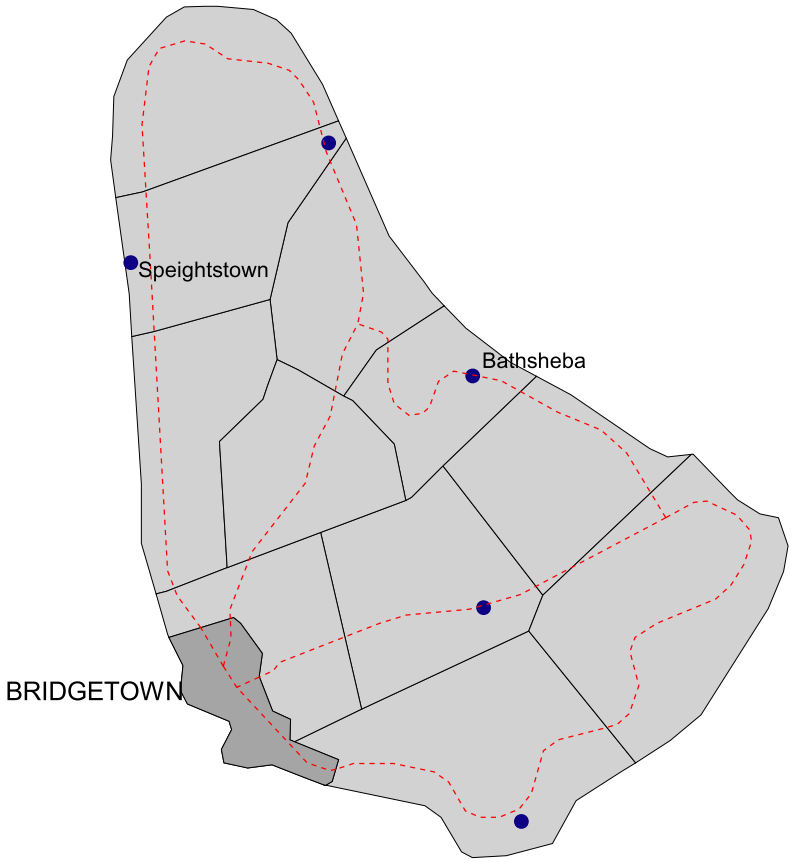
References of data presented in Table 1, unless otherwise stated:

Source:	*Indicator:*
FAOSTAT. 1999/2002	*A.1-2, B, C.10-11, E.1-3, F, G*
UN. 2000/2001 rev.	*C.1-9, D.5*
World Bank. 1999.	*D.1*
UNDP. 1997.	*D.2*
Tabatabai H. 1996.	*D.3-4*
UNICEF. 2000.	*D.6*
FAO/WFS. 2002.	*H*

NCP of BARBADOS
MAPS

General map of Barbados

General map of Barbados



Main roads
Main cities
Capital city
Regions

N
W
E
S

FAO-GIS/ESNA, July, 2002

Scale 1: 265 000 (approx.)
Geographic Projection (Lat/Long)

Barbados