

ESTIMATES OF FOOD PRODUCTION AND FOOD AVAILABILITY IN GHANA: THE CASE OF YEAR 2000

by

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Introduction

The economy of Ghana which is largely agrarian, has been dominated by primary commodity production and exports. Ghana has been the world's leading exporter of cocoa until the early 1980s when Cote d'Ivoire overtook her as the leading exporter. Gold and Timber are two other major traditional primary exports from Ghana. More recently (i.e. since the mid to late 1980s), non-traditional agricultural exports, particularly pineapples, have become important foreign exchange earners for the country. A competition between the cash crop and food crop sub-sectors for scarce resources has therefore been a common feature of Ghana's agricultural sector over the years.

The agricultural sector, including crops, livestock, fisheries, and forestry., accounts for about 40% of Ghana's Gross Domestic Product (GDP), employs in excess of 60% of the country's working population, and generates over 40% of the country's foreign exchange earnings annually. This makes agriculture the most dominant sector of the economy of Ghana. The performance of the agricultural sector therefore has serious implications for the entire economy. For example, a negative annual average growth rate of about -1.2% for agriculture between 1970 and 1980 translated into a -1% average annual growth rate for the entire economy during the same period; and in 1992 when agriculture experienced a negative growth rate, GDP growth declined from 5.3% the previous year to only 3.9% in 1992 (see Table 1). This is consistent with

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the general observation that for most developing countries whose economies are largely agrarian, the overall GDP growth tends to be within 2% of agricultural growth rates (MOFA, 1999).

Table 1. Annual Growth Rates of Gross Domestic Product (GDP) and Agricultural GDP

Year	Gross Domestic Product (GDP)	Agricultural GDP
1991	5.5	5.8
1992	3.9	- 1.2
1993	5.0	2.3
1994	3.8	2.7
1995	4.5	4.2
1996	5.2	4.0
1997	5.1	3.3

Source: World Bank Reports – Various Issues

Ghana’s agriculture is divided into four main sub-sectors. These include Crops and Livestock, Cocoa, Forestry and Logging, and Fisheries. Based on their contribution to Agricultural GDP, the Crops and Livestock sub-sector is the largest (28%), followed by the Cocoa sub-sector (7%), the Forestry and Logging sub-sector (4%), and the Fisheries sub-sector (1%), in that order; which together make up about 40% of Ghana’s total GDP (MOFA, 1997). In terms of volume of production, food crop production dominates the agricultural sector.

Agricultural production in Ghana is primarily rainfed, making food crop production in particular subject to the uncertainties associated with weather conditions. Wide variations in food output which are largely a function of fluctuations in rainfall characterize food production patterns for all the major food crops and livestock. As a result, even though food production levels have

improved since Ghana's Economic Recovery Programme (ERP) was launched in 1983, they have not been able to match food demand on yearly basis. Imports of food, including food aid, continue to be used to make up the shortfalls. Such food imports have included both commercial imports through official channels and those that occur across the countries borders with neighbouring states (cross border trade) most of which are usually not documented.

The purpose of this paper is to provide an overview of the food production and consumption outlook for Ghana, as well as the price movements and food marketing outlook for year 2000. Six more sections follow the introduction. Section two provides highlights on the production and marketing of the major food staples in Ghana, including livestock production patterns and marketing. Section three briefly reviews annual imports of major food items (including livestock) into Ghana. In section five an overview of price movements for food crops is provided. Section six covers the food balance sheet for year 2000. In section seven a summary of the major issues discussed in the paper is provided, as well as recommendations on policy implications of these issues.

Food Crop and Livestock Production and Marketing Patterns

The major food crops produced in Ghana include cereals (maize, rice, sorghum and millet), roots and tubers (cassava, yams, cocoyam, and sweet potatoes), plantain/banana, and legumes (cowpea and soyabean). Cattle, sheep and goats, and poultry, on the other hand, constitute the major types of livestock produced in Ghana.

Food Crop Production and Marketing

Food crop production in Ghana is mainly subsistence in nature, with only a small proportion as

large scale commercial enterprises. The subsistence nature of food crop production implies that total crop output and marketable surpluses are subject to variability and large fluctuations; usually patterned after the uncertainties associated with rainfall. Similarly, rainfed-agriculture makes the seasonality of crop production an important feature of agriculture in Ghana. Seasonality of crop production has implications also for output levels of different crops during different periods of the year, and how they affect food availability to rural and urban dwellers.

Whereas most subsistence farmers are able to produce enough to feed their households and some amount left over as marketable surpluses, some of those who concentrate more on cash crops usually have to purchase most of their household food needs. Asante et al (1998) estimate that the country is only about 70% self-sufficient in cereal production. But in the case of roots and tubers such as cassava and yam, domestic demand is generally met through domestic production alone, with surpluses in most normal years. The implication is that Ghana will continue to import some categories of food commodities (e.g. rice) to make up for the gaps that exist between domestic supply and demand for those food items.

Furthermore, the seasonal nature of some food products (e.g. tomatoes) require their importation into Ghana during the lean periods when such commodities are in short supply. In the case of tomatoes in particular, recent field surveys have indicated that there exists some kind of reverse trade between Ghana and her neighbouring states. Tomatoes are observed to be exported from Ghana during Ghana's peak season, particularly to Togo and Burkina Faso, and then imported back into the country during the lean season.

Table 2 presents the annual production of some major food crops in Ghana. Even though most of the products show increasing trends since 1991, the modest increases are unable to match the increases in their demand, particularly in the face of higher population increases. But it should be noted that none of the food crops consistently increased over the period between 1991 and 1998. The fluctuations in output could reflect the variability in rainfall patterns since all the crops are mainly rainfed.

Table 2. Output of Major Food Crops in Ghana ('000 mt), 1991 to 1998

	1991	1992	1993	1994	1995	1996	1997	1998
CEREALS								
Maize	932	731	961	940	1,034	1,008	996	1,015
Rice	151	132	157	162	221	216	197	281
Sorghum	241	259	328	324	360	353	332	355
Millet	112	133	198	168	209	193	143	162
ROOTS & TUBERS								
Cassava	5,702	5,662	5,973	6,025	6,611	7,111	7,000	7,172
Yam	2,632	2,331	2,720	1,700	2,126	2,275	2,408	2,703
Cocoyam	1,297	1,202	1,236	1,148	1,408	1,552	1530	1577
Others								
Plantain	1,297	1,082	1,322	1,475	1,637	1,823	1,818	1913

Source: Ministry of Food and Agriculture (MOFA), Accra, Ghana.

The internal marketing of food commodities in Ghana has been done mainly by the private sector, involving predominantly itinerant traders. Under the government's Medium Term

Agricultural Development Programme (MTADP) which was implemented between 1991 and 1997, many of the market structures which form the first contact between producers and traders, as well as consumers, have been rebuilt or improved. Significant road infrastructure development across Ghana within the last decade has also helped to facilitate food commodity marketing. However, wastage and post harvest losses continue to be high in the food sector due primarily to inadequate storage facilities and rudimentary processing of agricultural products.

Livestock Production and Marketing

Domestic livestock production in Ghana has been a peasant activity, and confined mainly to the northern savannah zone and the coastal plains; except poultry which is commercialized mainly as a peri-urban activity. MOFA estimates that the country's production of cattle, sheep and goats accounts for about 30% of her demand for red meat, and that the rest are imported. Livestock annual population figures are presented in Table 3.

Table 3. Livestock Populations in Ghana ('000 heads)

	Cattle	Sheep	Goats	Poultry
1991	1,195	2,162	2,194	10,527
1992	1,159	2,162	2,157	11,232
1993	1,169	2,127	2,130	12,170
1994	1,217	2,216	2,204	12,289
1995	1,123	2,070	2,156	13,083
1996	1,250	2,420	2,530	14,590

Source: Livestock Planning and Information Unit (LPIU), MOFA, Accra.

Except poultry which is marketed both in frozen state at supermarkets and live, livestock in Ghana is generally sold on-hoof and slaughtered at designated abattoirs. Cattle dealers who themselves may be butchers, as well as local butchers, control the sale of red meat in most Ghanaian markets. Local animals are usually not differentiated from imported ones at the slaughtering stage, and therefore red meat sold on the market is not differentiated by origin or breed. However, at the market there is a clear difference between red meat from local sources and those imported as frozen meat, with the per kilogram price higher for the local meat than the imported one..

Imports of Major Food Commodities (Including Livestock)

In spite of the modest improvements in the domestic production of food commodities since the mid-1980s, food imports (both commercial and food aid) continue to be important as a mechanism for bridging the gap between domestic production and consumption. Ghana imports a number of food items to make up for shortfalls in domestic production. These include wheat (which is not produced locally at all), rice, fish products, palm oil, sugar, alcoholic beverages, livestock and poultry products, among others. Table 4 presents the values of selected imported food commodities to Ghana between 1991 and 1996, which shows an increasing trend.

In the case of meat imports, frozen beef, chicken, turkey thighs and tails, mutton, and pig feet (mainly salted), are among the most important. But imports of livestock products show significant variability from year to year as Table 5 indicates. For example, while beef and turkey (thighs and wings) imports declined by 15% and 27%, respectively, between 1997 and 1998, imports of milk products increased by 62% and mutton imports increased fivefold.

Nyanteng (1997) shows that in value terms, food imports increased by about 164% between 1986 and 1996 from US\$735 million to US\$ 1,936 million; and this figure continues to grow. This implies that food imports will continue to be important to Ghana in the foreseeable future.

Table 4. Imports of Selected Food Items ('000 Cedis), 1991 – 1995

	Rice	Wheat	Sugar	Canned Fish	Milk & Cream
1991	2,483,334	3,772,760	1,568,618	1,096,492	965,406
1992	32,499,969	10,766,429	11,280,291	1,645,818	5,704,288
1993	31,380,092	16,876,512	25,153,778	2,545,199	6,280,092
1994	46,437,081	33,192,127	35,521,831	5,611,450	6,548,300
1995	24,441,946	31,475,541	27,353,144	2,296,193	419,687

Source: Ghana Statistical Services, 1997.

Table 5. Comparison between 1997 and 1998 Imports of Livestock Products (Mt)

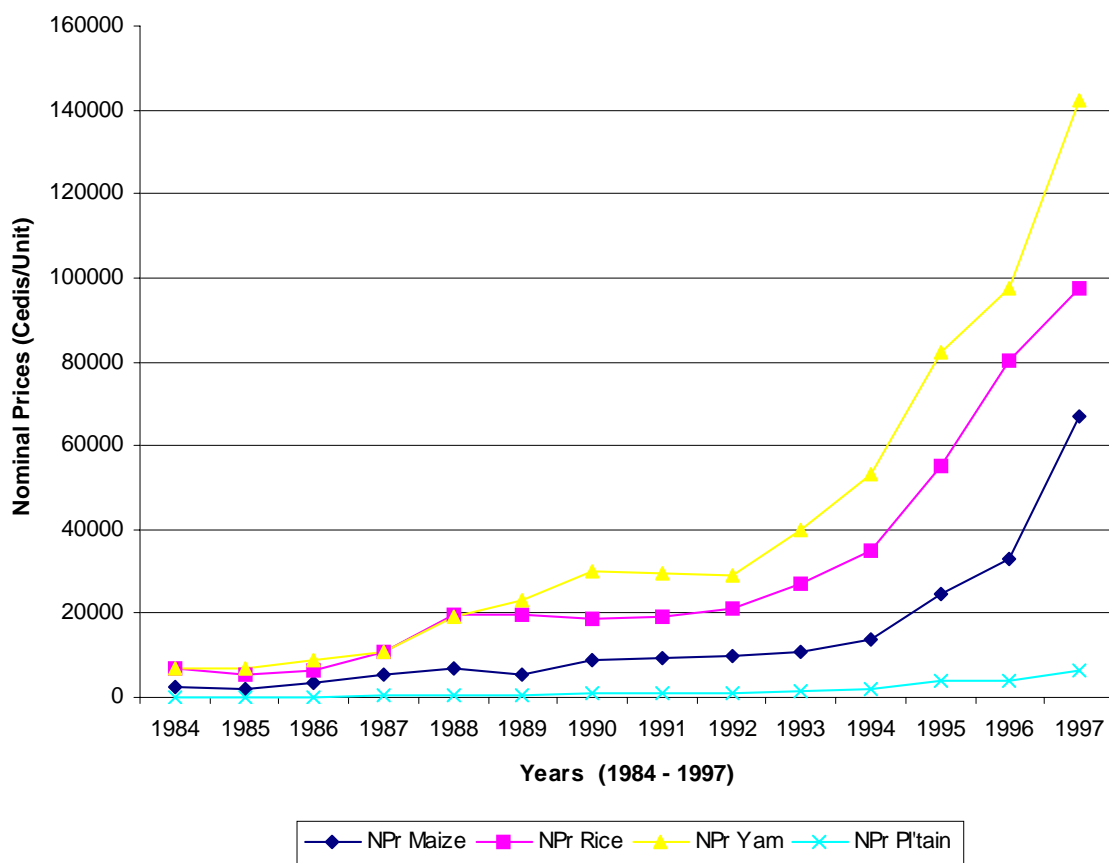
	Qty. (Mt) in 1997	Qty. (Mt) in 1998	% Change
Beef	1,687	1,442	- 15
Chicken (Wings, Thighs, etc)	5,891	7,291	24
Milk Products	6,141	9,941	62
Mutton	142	855	502
Pig (feet, etc)	741	758	0.2
Turkey (Tails, Thighs, etc)	3,048	2,241	- 27
Processed Meat	130	184	42
Others (buffalo, duck, etc)	139	178	28

Source: Livestock Planning and Information Unit (LPIU), MOFA, Accra

Overview of Price Movements for Food Products

Nominal prices of food products have consistently shown an upward trend over the years due to a combination of factors, including inflationary pressures and product scarcity particularly during off seasons. Figure 1 presents the nominal average prices for selected food commodities for the period 1984 to 1997. Prices of all food commodities show upward trends for the period under review, except the price of plantain which has been relatively stable until the mid-1990s when it started to rise slightly.

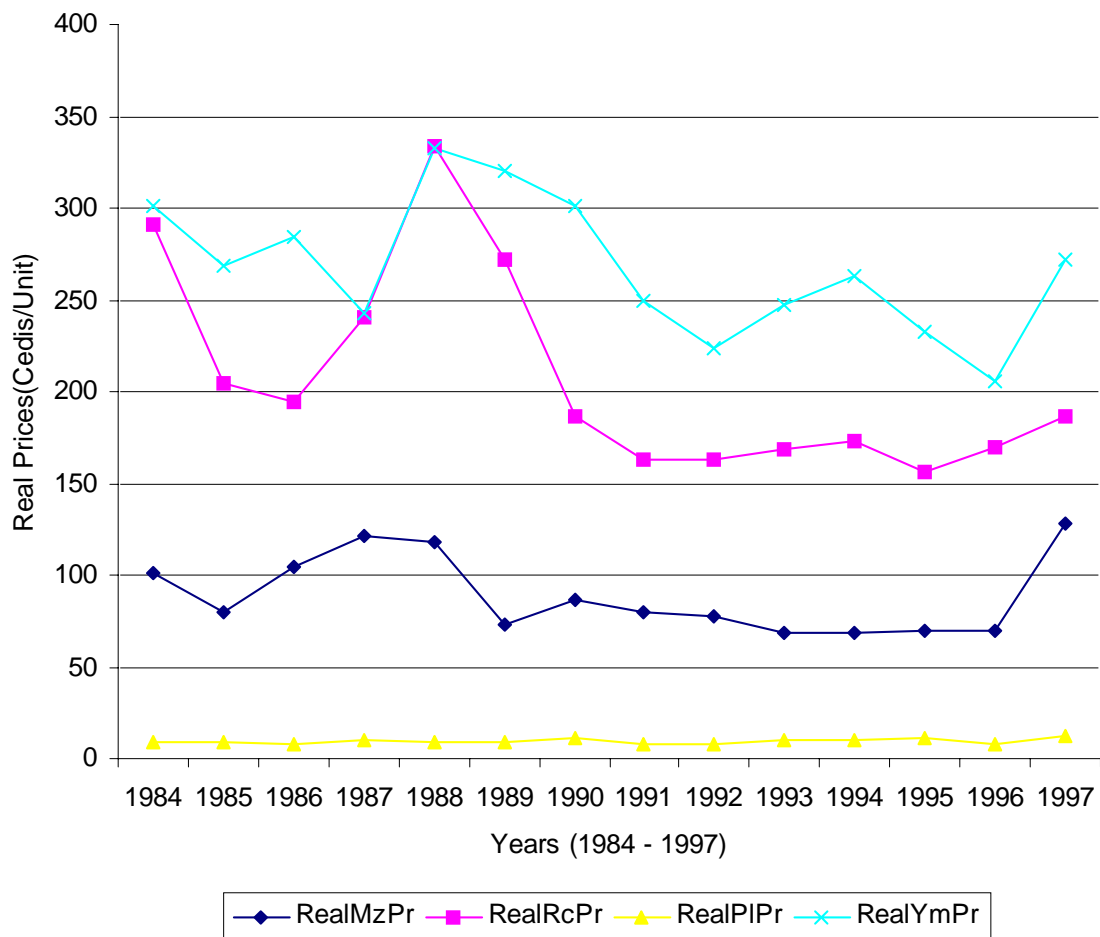
Fig.1. Nominal Prices of Selected Food Commodities in Ghana (1984-1997)



Source: Based on Appendix Table 1.

In terms of real prices, Figure 2 shows that except for plantain whose real price has been stable throughout the 1980s and 1990s, the real prices of the other food crops declined during most of the 1990s after an initial increase from the mid-1980s; and started to increase again only after the mid 1990s. This has implications for both farmer incentives to increase food production and the levels of imports of various food commodities that would be needed on an annual basis.

Fig. 2. Real Price of selected Food Commodities in Ghana (1984-1997)



Source: Real prices computed based on Appendix Table 1.

Food Balance Sheet for Year 2000

The food balance sheet for year 2000 as computed by MOFA, the sector ministry responsible, is presented in Table 6. This is the situation that assumes that no trade takes place. It is evident from the table that while roots and tubers and other crops show good prospects with surpluses in year 2000, all the cereals show deficits. Ghana has been importing rice annually because domestic production falls short of domestic demand. However, the domestic production of the other cereals are usually subject to fluctuations from one year to another, and sometimes making accurate predictions becomes a daunting task.

Table 6. Estimated Food Balance Sheet for Year 2000 (assuming No Trade) in '000 mt

	Biological Production (‘000 mt)	Net Production (‘000 mt)	Per Capita Consumption (kg/year)	Demand (‘000 mt)	Surplus (+) Deficit (-) (‘000 mt)
CEREALS					
Maize	1,056	740	43	817	- 77
Rice	218	212	14	266	- 54
Sorghum	372	260	18	333	- 73
Millet	160	112	18	333	- 221
ROOTS & TUBERS					
Cassava	7,831	5,461	151	2,869	+ 2,621
Yam	3,360	2,688	43	817	+1,871
Cocoyam	1,832	1,465	56	1,064	+401
Plantain	2,169	1,844	84	1,596	+248

Note: Estimated population used is 19 million

Net production of maize, sorghum/millet and cassava are 70% of Biological (or gross) production; 80% for rice, yam, and cocoyam; and 85% for Plantain. The difference between Biological and Net production is accounted for by seed, feed, and post harvest losses.

Source: Ministry of Food and Agriculture (MOFA), Accra, Ghana.

When trade is considered and carry over stocks are included in the computations, then Ghana should have enough food available in year 2000. The figures are presented in Table 7.

Table 7. Estimated Food Balance Sheet for Year 2000 (with Trade) in '000 mt

	Maize	Rice	So'hum	Millet	Cassava	Yam	C'yam	Pl'tain
Production	1,056	218	372	160	7,831	3,360	1,832	2,169
Stocks	?	?	?	?	?	?	?	?
Imports	neg.	212	3	neg.	0	0	0	0
Exports	neg.	0	0	0	neg.	neg.	0	0
Other (feed, seed, losses)	-316	-63	-112	-48	-2,385	-672	-367	-325
Total	740	367	263	112	5,461	2,688	1,465	1,844
Consumption	817	266	333	333	2,869	817	1,064	1,844
Per Capita Consumption (kg/year)	43	14	18	18	151	43	56	84
Expected Carry Over Stocks	?	101	?	?	+2,612	+1,871	+401	+248
Net Balance	-77	101	-70	-221	+2,612	+1,871	+401	+248

Note: **neg.** means negligible.

Figures for Stocks are unavailable, but there are stocks carried over for each crop from year to year.

Source: Computed from figures provided by MOFA and Ghana Statistical Services (GSS), Accra.

We note that stocks of food are carried over from year to year for all the food crops considered for food security reasons. However, there has been some problems with obtaining the data on current stock levels because the parastatal, Ghana Food Distribution Corporation (GFDC), which used to be responsible for the information gathering and analysis has become defunct under structural adjustment programme and privatization in Ghana.

Also, the deficits shown for the cereals, namely, maize, sorghum, and millet, have resulted more from lack of data on stock levels as at the end of 1999 than actual food deficiency. Moreover, the surpluses from roots and tubers more than compensate for the shortfalls in cereals so that food is available throughout the year. The Food and Agriculture Organization (FAO) in its food supply Situation Outlook for December 1999 has declared Ghana's overall food supply as satisfactory.

Among the major cereals consumed in Ghana, but not shown on the food balance sheet, is wheat all of which is imported because there is no local production. An annual average volume of about 200,000 metric tons of wheat are imported into the country and processed mainly into bread for consumption.

Estimates made for the food balance sheet for year 2000 were based primarily on expected farmers' production plans in terms of plantings and technology use during the current season. There seems to be general optimism among producers due to last year's good harvest, as well as a normal year weather prediction provided by the Ghana Meteorological Services. The amount of rainfall available, together with the distribution of rainfall in any particular year, are among the most important factors that influence farmers' planting plans for each year. The outlook for

food production and availability in year 2000 therefore looks good for the country.

Based on price trends in previous years and expert knowledge on food price movements in Ghana, nominal prices in the current year are expected to remain stable if inflation is contained, except during harvest periods when they might dip slightly. Stable prices imply more access to food by most of the population, and this is the expectation for year 200.

Conclusion and Policy Implications

This paper has reviewed food production and food availability in Ghana, with a focus on the food situation outlook for year 2000. The production and marketing of major staples in Ghana, the production and marketing of livestock and livestock products, as well as their availability has been highlighted. Issues concerning the food balance sheet for year 2000, and prospects about the food situation in Ghana, including food price movements, have been addressed.

It is seen from the available data that whereas starchy staples in Ghana generally show annual production surpluses, the output of cereals show more variability from year to year, with some years showing deficits. Coupled with this is the tendency of declining real prices for most food commodities, implying low levels of incentives for producers. Also, there is no data available on food stock levels to aid good planning on food needs and food requirement on a yearly basis.

The implication is that the government of Ghana should periodically review her macroeconomic policies in terms of how they affect agricultural incentives, particularly food production incentives, so as to create a congenial economic environment for sustainable food production and food availability in Ghana. Also, lack of data on carry-over food stock is a serious limitation

to good forward planning by the government and other food related agencies. The role played by the availability of good data in a useable form to aid economic planning and programming cannot be overemphasized. Government should therefore take appropriate measures, such as revamping the Policy, Planning, Monitoring, and Evaluation Department (PPMED) of the Ministry of Food and Agriculture (MOFA), to improve and sustain the collection and analysis of agricultural data.

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APPENDIX I

Table 5. Nominal Annual Average wholesale Prices for Selected Food Crops (1984 - 1997)

	CPI 1990 = 100	NomPr Maize	NomPr Rice	NomPr PI'tain	NomPr Yam
1984	23	2338	6710	209	6960
1985	25	2038	5207	216	6813
1986	32	3311	6174	239	9012
1987	44	5387	10631	435	10769
1988	58	6859	19452	517	19387
1989	73	5300	19802	696	23365
1990	100	8633	18662	1109	30102
1991	118	9434	19277	887	29469
1992	130	10048	21179	1069	29070
1993	162	11072	27300	1610	40098
1994	203	13863	35163	1940	53210
1995	363	24708	55157	4160	82219
1996	474	32814	80270	3693	97487
1997	523	66736	97497	6538	142086

Source: Policy, Planning, Monitoring, and Evaluation Department (PPMED) of MOFA.